

ANNUAL GROUNDWATER EXTRACTION SYSTEM PERFORMANCE REPORT HELENA, MONTANA

Prepared For:

CITY OF HELENA
HELENA, MONTANA



Hydrometrics, Inc.
consulting scientists and engineers

RECEIVED

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DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU



October 23, 2014

Mr. John Collins
Environmental Science Specialist
Solid Waste Regulatory Program
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear John,

On behalf of the City of Helena, I am submitting the annual groundwater extraction system performance report for the City of Helena Landfill, plant ID 049 0014. The groundwater extraction system was installed in the spring of 2000 and is located just north of the landfill boundary. This treatment system includes three extraction wells (HL-99-1, HL-99-2, and HL-99-3) to intercept tetrachloroethene (PCE) impacted groundwater migrating downgradient of the landfill. The extracted groundwater is pumped through aeration nozzles into two lined ponds located on Bill Roberts Golf Course. In accordance with regulations, the treated water is sampled monthly to ensure the treatment goals have been met in conjunction with land application on the golf course.

The groundwater extraction system operated May 29, 2014 through October 21, 2014 for a total of 144 days. Due to a six-week pond and irrigation system renovation, the extraction system was started later in the season than usual. The batteries in the flowmeter displays were replaced in all three extraction wells prior to startup and calibration of the system in late April. The flowmeter computer in HL-99-2 was replaced prior to startup due to system malfunction during the initial calibration. Hydrometrics' personnel winterized the extraction system after the system was shut down in October. Several tables showing all the data collected at the groundwater extraction system over the last year and calculations performed with that data are included as Attachment A to this report. A summary of the operational data is shown in Table 1. With a combined average flow of 65.5 gpm from the three extraction wells, a total of 13.5 million gallons of groundwater was extracted and treated this year.

Groundwater samples were collected in December 2013 and June 2014 from each of the extraction wells. The field book notes, sampling forms and lab reports for this sampling were included in the December 2013 and June 2014 data validation reports you have already received. Table 2 includes a summary of the sample results. Only those parameters that were detected in at least one extraction well during the December 2013 or June 2014 sampling events were included. Assuming a conservative treatment level of 0.00025 mg/L for each compound and the total volume pumped for each well, the estimated mass of volatile

organic compounds (VOCs) removed from each well was calculated. These values are also shown in Table 2.

TABLE 1. SUMMARY OF OPERATIONAL DATA

Extraction Well	Days Operated	Average Flowrate (gpm)	Total Volume Removed (gal)
HL-99-1	142.9	11.9	2,444,303
HL-99-2	144.8	22.0	4,584,585
HL-99-3	142.9	31.7	6,518,446
Total	145	65.5	13,547,334

**TABLE 2. EXTRACTION WELL SAMPLE RESULTS
AND MASS OF VOCs REMOVED**

VOC	HL-99-1		HL-99-2		HL-99-3		Total	
	Average Conc. (mg/L)	Mass Removed (kg)	Average Conc. (mg/L)	Mass Removed (kg)	Average Conc. (mg/L)	Mass Removed (kg)	Average Conc. (mg/L)	Mass Removed (kg)
1,1-Dichloroethane	0.00084	0.0055	0.0028	0.0442	0.0022	0.0481	0.0019	0.0978
Chloroform	0.0019	0.0148	0.0017	0.0252	0.0023	0.0506	0.0020	0.0905
Cis-1,2-dichloroethane	0.0017	0.0134	0.00089	0.0110	0.00072	0.0116	0.0011	0.0360
Dichlorodifluoromethane	0.00070	0.0041	0.0018	0.0269	0.00097	0.0178	0.00116	0.0488
Methylene chloride	<0.0005	0.0000	<0.0005	0.0000	0.00052	0.0065	0.00051	0.0065
Tetrachloroethene (PCE)	0.0037	0.0315	0.0056	0.0920	0.0060	0.1406	0.0051	0.2641
Trichloroethene (TCE)	0.00083	0.0053	0.0012	0.0156	0.00094	0.0169	0.00097	0.0378
Trichlorofluoromethane	<0.0005	0.0000	0.00054	0.0050	<0.0005	0.0000	0.00051	0.0050
Total Mass Removed		0.0746		0.220		0.292		0.587

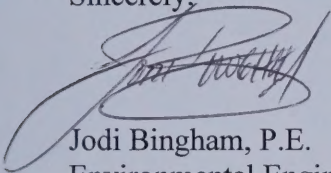
The sample results from the extraction wells indicate that the average PCE concentration being extracted from the system is 0.0051 mg/L for a total mass of PCE removed of 0.264 kg. The total mass of VOC's removed by the groundwater extraction system during the 2014 irrigation season was 0.59 kg.

During system operation, surface water samples were collected on a monthly basis from the golf course sprinkler system. These water quality samples ensure that treatment goals are met. In addition, a single sample was collected from the east golf course pond during the

June sampling event. The field book notes and lab reports for each of these sampling events has been included as Attachment B to this report. The results from the monthly sampling events indicate that all VOCs were below their respective laboratory detection limits prior to land application at the golf course.

If you have any questions concerning this data or need any additional information to complete your files, please do not hesitate to call me at 443-4150, Ext. 172.

Sincerely,



Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: Randall Camp, City of Helena Public Works Director (w/attachments)
Pete Anderson, City of Helena Solid Waste Supervisor (w/attachments)
Mike Wignot, Hydrometrics, Inc. (w/out attachments)

ATTACHMENT A

DATA ANALYSIS FOR THE

GROUNDWATER EXTRACTION SYSTEM

HL-99-1

HL-99-1 Operational Data:

Date	Time	Hour Meter Reading	Totalizer 2 Reading	Instantaneous Flowmeter Reading	Hours Operated		Volume Extracted		Flowrate	
					Calculated from date	Calculated from hour meter	Calculated from Totalizer 2 Readings	Calculated from Avg. Flow and Hour Meter Readings	Average Flowmeter Reading	Calculated from Totalizer and Hour meter
5/29/2014	13:45	0.0	13,333	nm	0	0			nm	0
6/2/2014	9:20	91.6	nm	11.61						
	last period to date				91.6	91.6	nm	63,809	11.61	nm
					91.6	91.6	nm	63,809	11.61	nm
7/1/2014	10:45	789.0	nm	12.00						
	last period to date				697.4	697.4	nm	493,968	11.81	nm
					789.0	789.0	nm	558,849	11.81	nm
8/1/2014	8:46	1531.0	nm	12.06						
	last period to date				742.0	742.0	nm	535,576	12.03	nm
					1531.0	1531.0	nm	1,092,215	11.89	nm
9/3/2014	8:56	2323.1	nm	12.16						
	last period to date				792.2	792.1	nm	575,540	12.11	nm
					2323.2	2323.1	nm	1,666,708	11.96	nm
10/1/2014	11:15	2953.1	nm	11.78						
	last period to date				674.3	630.0	nm	452,466	11.97	nm
					2997.5	2953.1	nm	2,112,411	11.92	nm
10/21/2014	8:50	3430.6	nm	11.64						
	last period to date				477.6	477.5	nm	335,492	11.71	nm
					3475.1	3430.6	nm	2,444,303	11.88	nm
Average/Total for 2014 Operating Season					3475.1	3430.6	nm	2,444,303	11.9	nm

VOC Sample Data (mg/L):

VOC	Cleanup Level*	12/16/2013	6/3/2014	Avg. Conc.	Total Mass (kg)
1,1-Dichloroethane	0.00025	0.00078	0.00090	0.00084	0.0055
Chloroform	0.00025	0.0019	0.0018	0.0019	0.0148
Cis-1,2-dichloroethane	0.00025	0.0017	0.0017	0.0017	0.0134
Dichlorodifluoromethane	0.00025	0.00063	0.00076	0.00070	0.0041
Methylene chloride	0.00025	<0.0005	<0.0005	<0.0005	0.0000
Tetrachloroethene	0.00025	0.0030	0.0043	0.0037	0.0315
Trichloroethene	0.00025	0.00077	0.00088	0.00083	0.0053
Trichlorofluoromethane	0.00025	<0.0005	<0.0005	<0.0005	0.0000
Total					0.0746

Sample Calculation:

mass of PCE removed (kg) = (avg. PCE conc - cleanup conc) * volume
 (0.0037 mg/L PCE - 0.00025 mg/L) * 2,453,565 gallons water *
 3.785 L/gal * 1/10⁶ kg/mg = 0.0316 kg PCE removed

*This cleanup level is the ultra-low detection limit used when analyzing the surface water samples collected at the golf course pond and sprinkler used for compliance monitoring.

HL-99-2

HL-99-2 Operational Data:

Date	Time	Hour Meter Reading	Totalizer 2 Reading	Instantaneous Flowmeter Reading	Hours Operated		Volume Extracted		Flowrate	
					Calculated from date	Calculated from hour meter	Calculated from Totalizer 2 Readings	Calculated from Flowmeter and Hour Meter Readings	Average Flowmeter Reading	Calculated from Totalizer and Hour meter
5/29/2014	13:50	0.0	0	27.41	0	0			27.41	0
6/2/2014	9:40	91.6	147,001	26.50						
	last period to date				91.8	91.6	147,001	148,145	26.96	26.7
					91.8	91.6	147,001	148,145	26.96	26.7
7/1/2014	10:53	789.0	508,549	21.88	*Flowmeter stuck - removed sediment and restarted					
	last period to date				697.2	697.4	361,548	1,012,206	24.19	8.6
					789.0	789.0	508,549	1,195,966	25.26	10.7
8/1/2014	8:56	1531.0	1,427,090	19.78						
	last period to date				742.0	742.0	918,541	927,352	20.83	20.6
					1531.1	1531.0	1,427,090	2,194,765	23.89	15.5
9/3/2014	9:05	2323.1	1,781,020	19.11	*Flowmeter stuck - removed sediment and restarted					
	last period to date				792.1	792.1	353,930	924,143	19.45	7.4
					2323.2	2323.1	1,781,020	3,196,957	22.94	12.8
10/1/2014	11:23	2997.3	2,531,710	19.78						
	last period to date				674.3	674.2	750,690	786,589	19.45	18.6
					2997.6	2997.3	2,531,710	4,030,170	22.41	14.1
10/21/2014	8:55	3474.8	3,101,770	19.47						
	last period to date				477.5	477.5	570,060	562,197	19.63	19.9
					3475.1	3474.8	3,101,770	4,584,585	21.99	14.9
Average/Total for 2014 Operating Season					3475.1	3474.8	3,101,770	4,584,585	22.0	14.9

VOC Sample Data (mg/L):

VOC	Cleanup Level*	12/16/2013	6/3/2014	Avg. Conc.	Total Mass (kg)
1,1-Dichloroethane	0.00025	0.0031	0.0025	0.0028	0.0442
Chloroform	0.00025	0.0019	0.0015	0.0017	0.0252
Cis-1,2-dichloroethane	0.00025	0.0010	0.00077	0.00089	0.0110
Dichlorodifluoromethane	0.00025	0.00210	0.0015	0.0018	0.0269
Methylene chloride	0.00025	<0.0005	<0.0005	<0.0005	0.0000
Tetrachloroethene	0.00025	0.0058	0.0053	0.0056	0.0920
Trichloroethene	0.00025	0.00130	0.0010	0.0012	0.0156
Trichlorofluoromethane	0.00025	0.00058	<0.0005	0.00054	0.0050
Total					0.2199

*This cleanup level is the ultra-low detection limit used when analyzing the surface water samples collected at the golf course pond and sprinkler used for compliance monitoring.

Sample Calculation:

mass of PCE removed (kg) = (avg. PCE conc - cleanup conc) * volume
 (0.0056 mg/L PCE - 0.0005 mg/L) * 4,584,585 gallons water *
 3.785 L/gal * 1/10⁶ kg/mg = 0.0920 kg PCE removed

HL-99-3 Operational Data:

HL-99-3 Operational Data:				Hours Operated		Volume Extracted		Flowrate		
Date	Time	Hour Meter Reading	Totalizer 2 Reading	Instantaneous Flowmeter Reading	Calculated from date	Calculated from hour meter	Calculated from Totalizer 2 Readings	Calculated from Flowmeter and Hour Meter Readings	Average Flowmeter Reading	Calculated from Totalizer and Hour meter
5/29/2014	13:55	0.0	0	33.78	0	0			33.78	0
6/2/2014	9:55	92.0	188,478	34.33						
	last period to date				92.0	92.0	188,478	187,984	34.06	34.1
					92.0	92.0	188,478	187,984	34.06	34.1
7/1/2014	11:04	789.1	1,624,390	34.22						
	last period to date				697.1	697.1	1,435,912	1,433,586	34.28	34.3
					789.1	789.1	1,624,390	1,614,972	34.11	34.3
8/1/2014	9:05	1531.1	3,099,040	31.94						
	last period to date				742.0	742.0	1,474,650	1,472,722	33.08	33.1
					1531.2	1531.1	3,099,040	3,083,712	33.57	33.7
9/3/2014	9:12	2323.2	4,561,190	29.44						
	last period to date				792.1	792.1	1,462,150	1,458,573	30.69	30.8
					2323.3	2323.2	4,561,190	4,563,973	32.74	32.7
10/1/2014	11:27	2953.1	5,657,780	29.11						
	last period to date				674.3	629.9	1,096,590	1,106,419	29.28	29.0
					2997.5	2953.1	5,657,780	5,694,167	32.14	31.9
10/21/2014	9:00	3430.4	6,468,460	28.87						
	last period to date				477.6	477.3	810,680	830,216	28.99	28.3
					3475.1	3430.4	6,468,460	6,518,446	31.67	31.4
Average/Total for 2014 Operating Season					3475.1	3430.4	6,468,460	6,518,446	31.7	31.4

VOC Sample Data (mg/L):

VOC	Cleanup Level	12/16/2013	6/3/2014	Avg. Conc.	Total Mass (kg)
1,1-Dichloroethane	0.00025	0.0013	0.0031	0.0022	0.0481
Chloroform	0.00025	0.0022	0.0024	0.0023	0.0506
Cis-1,2-dichloroethane	0.00025	0.00051	0.00093	0.00072	0.0116
Dichlorodifluoromethane	0.00025	0.00064	0.0013	0.00097	0.0178
Methylene chloride	0.00025	<0.0005	0.00053	0.00052	0.0065
Tetrachloroethene	0.00025	0.0039	0.0080	0.0060	0.1406
Trichloroethene	0.00025	0.00067	0.0012	0.00094	0.0169
Trichlorofluoromethane	0.00025	<0.0005	<0.0005	<0.0005	0.0000
Total					0.2921

*This cleanup level is the ultra-low detection limit used when analyzing the surface water samples collected at the golf course pond and sprinkler used for compliance monitoring.

Sample Calculation:

mass of PCE removed (kg) = (avg. PCE conc - cleanup conc) * volume
 = (0.0060 mg/L PCE - 0.0005 mg/L) * 6,518,446 gallons water *
 3.785 L/gal * 1/10⁶ kg/mg = 0.1406 kg PCE removed

ATTACHMENT B

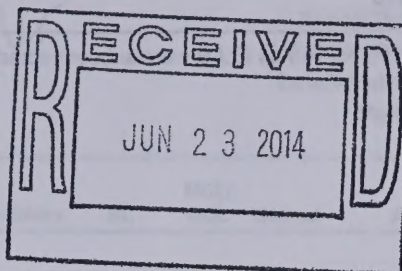
**FIELD BOOK NOTES AND
LAB REPORTS FOR SURFACE WATER SAMPLES**

ANALYTICAL SUMMARY REPORT

June 23, 2014

Hydrometrics Inc
3020 Bozeman Ave
Helena, MT 59601

Work Order: H14060018
Project Name: 1273 City of Helena



Energy Laboratories Inc Helena MT received the following 3 samples for Hydrometrics Inc on 6/2/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14060018-001	CHHL-1406-100	06/02/14 10:30	06/02/14	Aqueous	8260-Volatile Organic Comp, 40 CFR Part 258 App I
H14060018-002	CHHL-1406-101	06/02/14 10:45	06/02/14	Aqueous	Same As Above
H14060018-003	TB4115	06/02/14 10:30	06/02/14	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Wanda Johnson
Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2014.06.23 12:51:21 -06:00



CLIENT: Hydrometrics Inc
Project: 1273 City of Helena
Work Order: H14060018

Report Date: 06/23/14

CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14060018-001
Client Sample ID: CHHL-1406-100

Sprinkler

Report Date: 06/23/14
Collection Date: 06/02/14 10:30
Date Received: 06/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	4.7	ug/L	J	20		SW8260B	06/04/14 18:54 / eli-b27
Acrylonitrile	ND	ug/L		3.0		SW8260B	06/04/14 18:54 / eli-b27
Benzene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Bromoform	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Bromomethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Carbon disulfide	ND	ug/L		1.0		SW8260B	06/04/14 18:54 / eli-b27
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Chloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Chloroform	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Chloromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	06/04/14 18:54 / eli-b27
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Dibromomethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	06/04/14 18:54 / eli-b27
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/04/14 18:54 / eli-b27
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/04/14 18:54 / eli-b27
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
2-Hexanone	ND	ug/L		20		SW8260B	06/04/14 18:54 / eli-b27
Iodomethane	ND	ug/L		1.0		SW8260B	06/04/14 18:54 / eli-b27
Methyl ethyl ketone	ND	ug/L		20		SW8260B	06/04/14 18:54 / eli-b27
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	06/04/14 18:54 / eli-b27
Methylene chloride	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Styrene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Toluene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27
Trichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:54 / eli-b27

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Prepared by Helena, MT Branch

Report Date: 06/23/14
Collection Date: 06/02/14 10:30
DateReceived: 06/02/14
Matrix: Aqueous

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14060018-002
Client Sample ID: CHHL-1406-101

Report Date: 06/23/14
Collection Date: 06/02/14 10:45
Date Received: 06/02/14
Matrix: Aqueous

Pond

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	06/04/14 18:25 / eli-b27
Acrylonitrile	ND	ug/L		3.0		SW8260B	06/04/14 18:25 / eli-b27
Benzene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Bromoform	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Bromomethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Carbon disulfide	ND	ug/L		1.0		SW8260B	06/04/14 18:25 / eli-b27
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Chloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Chloroform	0.23	ug/L	J	0.50		SW8260B	06/04/14 18:25 / eli-b27
Chloromethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	06/04/14 18:25 / eli-b27
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Dibromomethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	06/04/14 18:25 / eli-b27
Dichlorodifluoromethane	0.12	ug/L	J	0.50		SW8260B	06/04/14 18:25 / eli-b27
1,1-Dichloroethane	0.18	ug/L	J	0.50		SW8260B	06/04/14 18:25 / eli-b27
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/04/14 18:25 / eli-b27
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/04/14 18:25 / eli-b27
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
2-Hexanone	ND	ug/L		20		SW8260B	06/04/14 18:25 / eli-b27
Iodomethane	ND	ug/L		1.0		SW8260B	06/04/14 18:25 / eli-b27
Methyl ethyl ketone	ND	ug/L		20		SW8260B	06/04/14 18:25 / eli-b27
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	06/04/14 18:25 / eli-b27
Methylene chloride	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Styrene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Tetrachloroethene	0.51	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Toluene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27
Trichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 18:25 / eli-b27

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Prepared by Helena, MT Branch

Report Date: 06/23/14
Collection Date: 06/02/14 10:45
DateReceived: 06/02/14
Matrix: Aqueous

Report RL - Analyte reporting limit. MCL - Maximum contaminant level.
Definitions: QCL - Quality control limit. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14060018-003
Client Sample ID: TB4115

Report Date: 06/23/14
Collection Date: 06/02/14 10:30
Date Received: 06/02/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	06/04/14 17:55 / eli-b27
Acrylonitrile	ND	ug/L		3.0		SW8260B	06/04/14 17:55 / eli-b27
Benzene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Bromoform	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Bromomethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Carbon disulfide	ND	ug/L		1.0		SW8260B	06/04/14 17:55 / eli-b27
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Chloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Chloroform	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Chloromethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	06/04/14 17:55 / eli-b27
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Dibromomethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	06/04/14 17:55 / eli-b27
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/04/14 17:55 / eli-b27
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/04/14 17:55 / eli-b27
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
2-Hexanone	ND	ug/L		20		SW8260B	06/04/14 17:55 / eli-b27
Iodomethane	ND	ug/L		1.0		SW8260B	06/04/14 17:55 / eli-b27
Methyl ethyl ketone	ND	ug/L		20		SW8260B	06/04/14 17:55 / eli-b27
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	06/04/14 17:55 / eli-b27
Methylene chloride	0.20	ug/L	J	0.50		SW8260B	06/04/14 17:55 / eli-b27
Styrene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Toluene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Trichloroethene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

J - Estimated value. The analyte was present but less than the reporting limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14060018-003
Client Sample ID: TB4115

Report Date: 06/23/14
Collection Date: 06/02/14 10:30
DateReceived: 06/02/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Vinyl acetate	ND	ug/L		1.0		SW8260B	06/04/14 17:55 / eli-b27
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/04/14 17:55 / eli-b27
m+p-Xylenes	ND	ug/L		1.0		SW8260B	06/04/14 17:55 / eli-b27
o-Xylene	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/04/14 17:55 / eli-b27
Surr: 1,2-Dichloroethane-d4	113	%REC		70-130		SW8260B	06/04/14 17:55 / eli-b27
Surr: Dibromofluoromethane	114	%REC		77-126		SW8260B	06/04/14 17:55 / eli-b27
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	06/04/14 17:55 / eli-b27
Surr: Toluene-d8	107	%REC		79-122		SW8260B	06/04/14 17:55 / eli-b27

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Analytical Run: B_R224879		
Lab ID: CCV_060414	Continuing Calibration Verification Standard							06/04/14 10:09	
trans-1,4-Dichloro-2-butene	5.04	ug/L	1.0	101	70	130			
Acetone	50.4	ug/L	20	101	70	130			
Acrylonitrile	60.8	ug/L	20	122	70	130			
Benzene	4.92	ug/L	1.0	98	70	130			
Bromochloromethane	5.12	ug/L	1.0	102	70	130			
Bromodichloromethane	5.48	ug/L	1.0	110	70	130			
Bromoform	5.20	ug/L	1.0	104	70	130			
Bromomethane	5.88	ug/L	1.0	118	70	130			
Carbon disulfide	5.52	ug/L	1.0	110	70	130			
Carbon tetrachloride	6.32	ug/L	1.0	126	70	130			
Chlorobenzene	5.16	ug/L	1.0	103	70	130			
Chlorodibromomethane	5.28	ug/L	1.0	106	70	130			
Chloroethane	5.36	ug/L	1.0	107	70	130			
Chloroform	5.52	ug/L	1.0	110	80	120			
Chloromethane	4.80	ug/L	1.0	96	70	130			
1,2-Dibromo-3-chloropropane	5.52	ug/L	1.0	110	70	130			
1,2-Dibromoethane	5.12	ug/L	1.0	102	70	130			
Dibromomethane	4.96	ug/L	1.0	99	70	130			
1,2-Dichlorobenzene	5.04	ug/L	1.0	101	70	130			
1,4-Dichlorobenzene	5.12	ug/L	1.0	102	70	130			
Dichlorodifluoromethane	5.44	ug/L	1.0	109	70	130			
1,1-Dichloroethane	5.00	ug/L	1.0	100	70	130			
1,2-Dichloroethane	5.76	ug/L	1.0	115	70	130			
1,1-Dichloroethene	5.68	ug/L	1.0	114	80	120			
cis-1,2-Dichloroethene	5.12	ug/L	1.0	102	70	130			
trans-1,2-Dichloroethene	6.00	ug/L	1.0	120	70	130			
1,2-Dichloropropane	4.72	ug/L	1.0	94	80	120			
cis-1,3-Dichloropropene	4.96	ug/L	1.0	99	70	130			
trans-1,3-Dichloropropene	5.44	ug/L	1.0	109	70	130			
Ethylbenzene	5.28	ug/L	1.0	106	80	120			
2-Hexanone	47.2	ug/L	20	94	70	130			
Iodomethane	5.12	ug/L	1.0	102	70	130			
Methyl ethyl ketone	44.8	ug/L	20	90	70	130			
Methyl isobutyl ketone	46.0	ug/L	20	92	70	130			
Methylene chloride	5.08	ug/L	1.0	102	70	130			
Styrene	5.56	ug/L	1.0	111	70	130			
1,1,1,2-Tetrachloroethane	5.72	ug/L	1.0	114	70	130			
1,1,2,2-Tetrachloroethane	4.80	ug/L	1.0	96	70	130			
Tetrachloroethene	5.24	ug/L	1.0	105	70	130			
Toluene	5.08	ug/L	1.0	102	80	120			
1,1,1-Trichloroethane	6.00	ug/L	1.0	120	70	130			
1,1,2-Trichloroethane	5.04	ug/L	1.0	101	70	130			
Trichloroethene	5.20	ug/L	1.0	104	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Analytical Run: B_R224879		
Lab ID: CCV_060414	Continuing Calibration Verification Standard							06/04/14 10:09	
Trichlorofluoromethane	6.44	ug/L	1.0	129	70	130			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	70	130			
Vinyl acetate	4.24	ug/L	1.0	85	70	130			
Vinyl chloride	5.04	ug/L	1.0	101	80	120			
m+p-Xylenes	10.8	ug/L	1.0	108	70	130			
o-Xylene	5.32	ug/L	1.0	106	70	130			
Xylenes, Total	16.1	ug/L	1.0		0	0			
Surr: 1,2-Dichloroethane-d4			1.0	113	70	130			
Surr: Dibromofluoromethane			1.0	116	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	107	79	122			
Method: SW8260B							Batch: B_R224879		
Lab ID: LCS_060414	Laboratory Control Sample							Run: SUB-B224879	
trans-1,4-Dichloro-2-butene	4.48	ug/L	1.0	90	50	142			06/04/14 10:39
Acetone	48.0	ug/L	20	96	62	130			
Acrylonitrile	54.4	ug/L	20	109	60	130			
Benzene	4.72	ug/L	1.0	94	71	133			
Bromochloromethane	5.48	ug/L	1.0	110	68	131			
Bromodichloromethane	5.20	ug/L	1.0	104	67	138			
Bromoform	5.56	ug/L	1.0	111	64	136			
Bromomethane	6.80	ug/L	1.0	136	60	138			
Carbon disulfide	6.12	ug/L	1.0	122	46	145			
Carbon tetrachloride	6.60	ug/L	1.0	132	61	144			
Chlorobenzene	4.64	ug/L	1.0	93	78	136			
Chlorodibromomethane	5.16	ug/L	1.0	103	72	136			
Chloroethane	5.64	ug/L	1.0	113	64	136			
Chloroform	5.60	ug/L	1.0	112	69	133			
Chloromethane	5.20	ug/L	1.0	104	63	149			
1,2-Dibromo-3-chloropropane	5.32	ug/L	1.0	106	63	125			
1,2-Dibromoethane	4.84	ug/L	1.0	97	75	131			
Dibromomethane	5.20	ug/L	1.0	104	72	133			
1,2-Dichlorobenzene	4.76	ug/L	1.0	95	78	129			
1,4-Dichlorobenzene	5.16	ug/L	1.0	103	78	131			
Dichlorodifluoromethane	6.24	ug/L	1.0	125	55	141			
1,1-Dichloroethane	5.28	ug/L	1.0	106	72	130			
1,2-Dichloroethane	5.32	ug/L	1.0	106	57	146			
1,1-Dichloroethene	5.68	ug/L	1.0	114	66	142			
cis-1,2-Dichloroethene	4.88	ug/L	1.0	98	74	133			
trans-1,2-Dichloroethene	5.92	ug/L	1.0	118	76	138			
1,2-Dichloropropane	4.28	ug/L	1.0	86	72	135			
cis-1,3-Dichloropropene	4.48	ug/L	1.0	90	75	132			
trans-1,3-Dichloropropene	5.28	ug/L	1.0	106	77	145			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B Batch: B_R224879									
Lab ID: LCS_060414	Laboratory Control Sample				Run: SUB-B224879			06/04/14 10:39	
Ethylbenzene	4.92	ug/L	1.0	98	78	131			
2-Hexanone	50.0	ug/L	20	100	72	131			
Iodomethane	6.84	ug/L	1.0	137	66	132			S
Methyl ethyl ketone	44.8	ug/L	20	90	55	145			
Methyl isobutyl ketone	49.2	ug/L	20	98	73	129			
Methylene chloride	5.04	ug/L	1.0	101	73	126			
Styrene	5.20	ug/L	1.0	104	76	134			
1,1,1,2-Tetrachloroethane	5.36	ug/L	1.0	107	75	135			
1,1,2,2-Tetrachloroethane	4.52	ug/L	1.0	90	72	132			
Tetrachloroethene	5.36	ug/L	1.0	107	78	137			
Toluene	4.80	ug/L	1.0	96	78	134			
1,1,1-Trichloroethane	6.20	ug/L	1.0	124	64	141			
1,1,2-Trichloroethane	4.80	ug/L	1.0	96	72	133			
Trichloroethene	4.76	ug/L	1.0	95	75	138			
Trichlorofluoromethane	6.52	ug/L	1.0	130	58	139			
1,2,3-Trichloropropane	4.88	ug/L	1.0	98	67	133			
Vinyl acetate	4.88	ug/L	1.0	98	31	124			
Vinyl chloride	5.56	ug/L	1.0	111	66	140			
m+p-Xylenes	9.92	ug/L	1.0	99	78	133			
o-Xylene	4.80	ug/L	1.0	96	79	136			
Surr: 1,2-Dichloroethane-d4			1.0	113	70	130			
Surr: Dibromofluoromethane			1.0	116	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	106	79	122			
Lab ID: BLK_060414	Method Blank				Run: SUB-B224879			06/04/14 11:37	
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0						
Acetone	ND	ug/L	10						
Acrylonitrile	ND	ug/L	10						
Benzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon disulfide	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0						
1,2-Dibromoethane	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Batch: B_R224879							
Lab ID: BLK_060414	Method Blank		Run: SUB-B224879				06/04/14 11:37		
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
2-Hexanone	ND	ug/L	10						
Iodomethane	ND	ug/L	1.0						
Methyl ethyl ketone	ND	ug/L	10						
Methyl isobutyl ketone	ND	ug/L	10						
Methylene chloride	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl acetate	ND	ug/L	1.0						
Vinyl chloride	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	112	70	130			
Surr: Dibromofluoromethane			1.0	113	77	126			
Surr: p-Bromofluorobenzene			1.0	111	76	127			
Surr: Toluene-d8			1.0	106	79	122			
Lab ID: B14060156-001A_MS	Sample Matrix Spike		Run: SUB-B224879				06/04/14 16:27		
trans-1,4-Dichloro-2-butene	4.80	ug/L	1.0	96	50	142			
Acetone	50.8	ug/L	20	102	62	130			
Acrylonitrile	56.0	ug/L	20	112	60	130			
Benzene	4.80	ug/L	1.0	96	71	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B Batch: B_R224879									
Lab ID: B14060156-001A_MS	Sample Matrix Spike				Run: SUB-B224879			06/04/14 16:27	
Bromochloromethane	5.84	ug/L	1.0	117	68	131			
Bromodichloromethane	5.20	ug/L	1.0	104	67	138			
Bromoform	5.36	ug/L	1.0	107	64	136			
Bromomethane	6.36	ug/L	1.0	127	60	138			
Carbon disulfide	6.08	ug/L	1.0	122	46	145			
Carbon tetrachloride	6.60	ug/L	1.0	132	61	144			
Chlorobenzene	4.64	ug/L	1.0	93	78	136			
Chlorodibromomethane	5.28	ug/L	1.0	106	72	136			
Chloroethane	6.08	ug/L	1.0	122	64	136			
Chloroform	5.76	ug/L	1.0	115	69	133			
Chloromethane	5.56	ug/L	1.0	111	63	149			
1,2-Dibromo-3-chloropropane	5.36	ug/L	1.0	107	63	125			
1,2-Dibromoethane	4.92	ug/L	1.0	98	75	131			
Dibromomethane	5.28	ug/L	1.0	106	72	133			
1,2-Dichlorobenzene	4.60	ug/L	1.0	92	78	129			
1,4-Dichlorobenzene	4.84	ug/L	1.0	97	78	131			
Dichlorodifluoromethane	6.72	ug/L	1.0	134	55	141			
1,1-Dichloroethane	5.40	ug/L	1.0	108	72	130			
1,2-Dichloroethane	5.60	ug/L	1.0	112	57	146			
1,1-Dichloroethene	5.84	ug/L	1.0	117	66	142			
cis-1,2-Dichloroethene	4.92	ug/L	1.0	98	74	133			
trans-1,2-Dichloroethene	5.52	ug/L	1.0	110	76	138			
1,2-Dichloropropane	4.36	ug/L	1.0	87	72	135			
cis-1,3-Dichloropropene	4.36	ug/L	1.0	87	75	132			
trans-1,3-Dichloropropene	5.20	ug/L	1.0	104	77	145			
Ethylbenzene	4.88	ug/L	1.0	98	78	131			
2-Hexanone	56.0	ug/L	20	112	72	131			
Iodomethane	6.24	ug/L	1.0	125	66	132			
Methyl ethyl ketone	48.4	ug/L	20	97	55	145			
Methyl isobutyl ketone	54.8	ug/L	20	110	73	129			
Methylene chloride	5.00	ug/L	1.0	100	73	126			
Styrene	5.20	ug/L	1.0	104	76	134			
1,1,1,2-Tetrachloroethane	5.36	ug/L	1.0	107	75	135			
1,1,2,2-Tetrachloroethane	4.48	ug/L	1.0	90	72	132			
Tetrachloroethene	5.20	ug/L	1.0	104	78	137			
Toluene	4.68	ug/L	1.0	94	78	134			
1,1,1-Trichloroethane	6.16	ug/L	1.0	123	64	141			
1,1,2-Trichloroethane	4.96	ug/L	1.0	99	72	133			
Trichloroethene	4.52	ug/L	1.0	90	75	138			
Trichlorofluoromethane	6.84	ug/L	1.0	137	58	139			
1,2,3-Trichloropropane	4.72	ug/L	1.0	94	67	133			
Vinyl acetate	4.84	ug/L	1.0	97	31	124			
Vinyl chloride	5.72	ug/L	1.0	114	66	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: B_R224879		
Lab ID: B14060156-001A_MS	Sample Matrix Spike		Run: SUB-B224879				06/04/14 16:27		
m+p-Xylenes	9.60	ug/L	1.0	96	78	133			
o-Xylene	4.80	ug/L	1.0	96	79	136			
Surr: 1,2-Dichloroethane-d4			1.0	118	70	130			
Surr: Dibromofluoromethane			1.0	116	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	105	79	122			
Lab ID: B14060156-001A_MSD	Sample Matrix Spike Duplicate		Run: SUB-B224879				06/04/14 16:57		
trans-1,4-Dichloro-2-butene	4.56	ug/L	1.0	91	50	142	5.1	20	
Acetone	54.0	ug/L	20	108	62	130	6.1	20	
Acrylonitrile	58.4	ug/L	20	117	60	130	4.2	20	
Benzene	4.88	ug/L	1.0	98	71	133	1.7	20	
Bromochloromethane	5.80	ug/L	1.0	116	68	131	0.7	20	
Bromodichloromethane	5.28	ug/L	1.0	106	67	138	1.5	20	
Bromoform	5.68	ug/L	1.0	114	64	136	5.8	20	
Bromomethane	6.60	ug/L	1.0	132	60	138	3.7	20	
Carbon disulfide	6.16	ug/L	1.0	123	46	145	1.3	20	
Carbon tetrachloride	6.60	ug/L	1.0	132	61	144	0.0	20	
Chlorobenzene	4.72	ug/L	1.0	94	78	136	1.7	20	
Chlorodibromomethane	5.40	ug/L	1.0	108	72	136	2.2	20	
Chloroethane	5.80	ug/L	1.0	116	64	136	4.7	20	
Chloroform	5.84	ug/L	1.0	117	69	133	1.4	20	
Chloromethane	5.80	ug/L	1.0	116	63	149	4.2	20	
1,2-Dibromo-3-chloropropane	5.48	ug/L	1.0	110	63	125	2.2	20	
1,2-Dibromoethane	5.36	ug/L	1.0	107	75	131	8.6	20	
Dibromomethane	5.40	ug/L	1.0	108	72	133	2.2	20	
1,2-Dichlorobenzene	4.88	ug/L	1.0	98	78	129	5.9	20	
1,4-Dichlorobenzene	5.20	ug/L	1.0	104	78	131	7.2	20	
Dichlorodifluoromethane	6.64	ug/L	1.0	133	55	141	1.2	20	
1,1-Dichloroethane	5.44	ug/L	1.0	109	72	130	0.7	20	
1,2-Dichloroethane	5.68	ug/L	1.0	114	57	146	1.4	20	
1,1-Dichloroethene	5.88	ug/L	1.0	118	66	142	0.7	20	
cis-1,2-Dichloroethene	5.04	ug/L	1.0	101	74	133	2.4	20	
trans-1,2-Dichloroethene	5.80	ug/L	1.0	116	76	138	4.9	20	
1,2-Dichloropropane	4.40	ug/L	1.0	88	72	135	0.9	20	
cis-1,3-Dichloropropene	4.48	ug/L	1.0	90	75	132	2.7	20	
trans-1,3-Dichloropropene	5.40	ug/L	1.0	108	77	145	3.8	20	
Ethylbenzene	5.00	ug/L	1.0	100	78	131	2.4	20	
2-Hexanone	57.6	ug/L	20	115	72	131	2.8	20	
Iodomethane	6.32	ug/L	1.0	126	66	132	1.3	20	
Methyl ethyl ketone	50.0	ug/L	20	100	55	145	3.3	20	
Methyl isobutyl ketone	56.0	ug/L	20	112	73	129	2.2	20	
Methylene chloride	5.12	ug/L	1.0	102	73	126	2.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: B_R224879		
Lab ID: B14060156-001A_MSD	Sample Matrix Spike Duplicate			Run: SUB-B224879			06/04/14 16:57		
Styrene	5.32	ug/L	1.0	106	76	134	2.3	20	
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135	2.2	20	
1,1,2,2-Tetrachloroethane	4.88	ug/L	1.0	98	72	132	8.5	20	
Tetrachloroethene	5.32	ug/L	1.0	106	78	137	2.3	20	
Toluene	4.80	ug/L	1.0	96	78	134	2.5	20	
1,1,1-Trichloroethane	6.16	ug/L	1.0	123	64	141	0.0	20	
1,1,2-Trichloroethane	4.96	ug/L	1.0	99	72	133	0.0	20	
Trichloroethene	4.64	ug/L	1.0	93	75	138	2.6	20	
Trichlorofluoromethane	6.52	ug/L	1.0	130	58	139	4.8	20	
1,2,3-Trichloropropane	5.24	ug/L	1.0	105	67	133	10	20	
Vinyl acetate	5.12	ug/L	1.0	102	31	124	5.6	20	
Vinyl chloride	5.76	ug/L	1.0	115	66	140	0.7	20	
m+p-Xylenes	9.92	ug/L	1.0	99	78	133	3.3	20	
o-Xylene	4.92	ug/L	1.0	98	79	136	2.5	20	
Surr: 1,2-Dichloroethane-d4			1.0	116	70	130			
Surr: Dibromofluoromethane			1.0	118	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	104	79	122			

Lab ID: BLK_060414	Method Blank			Run: SUB-B224879			06/04/14 11:37		
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0						
Acetone	ND	ug/L	10						
Acrylonitrile	ND	ug/L	3.0						
Benzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon disulfide	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0						
1,2-Dibromoethane	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 06/23/14
Work Order: H14060018

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									
Batch: B_R224879									
Lab ID: BLK_060414	Method Blank								
Run: SUB-B224879									06/04/14 11:37
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.30						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
2-Hexanone	ND	ug/L	10						
Iodomethane	ND	ug/L	1.0						
Methyl ethyl ketone	ND	ug/L	10						
Methyl isobutyl ketone	ND	ug/L	10						
Methylene chloride	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl acetate	ND	ug/L	1.0						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	112	70	130			
Surr: Dibromofluoromethane			1.0	113	77	126			
Surr: p-Bromofluorobenzene			1.0	111	76	127			
Surr: Toluene-d8			1.0	106	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Hydrometrics Inc

H14060018

Login completed by: Wanda Johnson

Date Received: 6/2/2014

Reviewed by: BL2000\kwiegand

Received by: wjj

Reviewed Date: 6/13/2014

Carrier Hand Del
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.2°C From Field-On Ice		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

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3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

HFORM-1 07/11
TNO 406-443-8550

SITE	SAMPLE CODE &	DATE	TIME	BOTTLES
SPRINKLER	CHLL	6/2/14	10:30	3/HF/HCI/VOCs
	-1406			1 TRIP BLANK
	-100			

POND	CHLL	6/2/14	10:45	3/HF/HCI/VOCs
	-1406			1 TRIP BLANK
	-101			

SITE	TIME	LOUR	FLOW	TOTALIZE
HL-99-1	09:20	0091.6	11.61	FLOW METER WOULD NOT SWITCH DISPLAY -NOTES REPAIRED

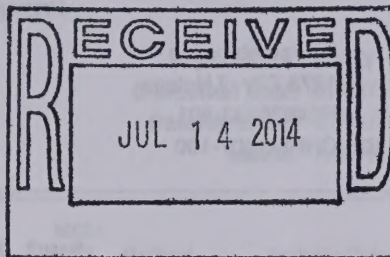
HL-99-2	09:40	0091.8	26.50	177 339
				147 601

WEATHER 51°F CLEAR, SLIGHT BREEZE

HL-99-3	09:55	0092.0	34.33	140 555
				188 478

ANALYTICAL SUMMARY REPORT

July 13, 2014

Hydrometrics Inc
3020 Bozeman Ave
Helena, MT 59601


Work Order: H14070033

Project Name: 1273 City of Helena

Energy Laboratories Inc Helena MT received the following 2 samples for Hydrometrics Inc on 7/1/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14070033-001	CHHL-1407-100	07/01/14 11:20	07/01/14	Aqueous	8260-Volatile Organic Comp, 40 CFR Part 258 App I
H14070033-002	TB 4199 CHHL-1407-100	07/01/14 11:20	07/01/14	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Project Manager - Helena, MT

Digitally signed by
Wanda Johnson

Date: 2014.07.13 09:30:04 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14070033-001
Client Sample ID: CHHL-1407-100

Report Date: 07/13/14
Collection Date: 07/01/14 11:20
Date Received: 07/01/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/10/14 20:37 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/10/14 20:37 / abb
Benzene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Bromoform	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/10/14 20:37 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Chloroform	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/10/14 20:37 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/10/14 20:37 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/10/14 20:37 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/10/14 20:37 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
2-Hexanone	ND	ug/L		20		SW8260B	07/10/14 20:37 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	07/10/14 20:37 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/10/14 20:37 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/10/14 20:37 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Styrene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Toluene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:37 / abb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14070033-001
Client Sample ID: CHHL-1407-100

Report Date: 07/13/14
Collection Date: 07/01/14 11:20
DateReceived: 07/01/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50	SW8260B	07/10/14 20:37 / abb	
1,2,3-Trichloropropane	ND	ug/L		0.50	SW8260B	07/10/14 20:37 / abb	
Vinyl acetate	ND	ug/L		1.0	SW8260B	07/10/14 20:37 / abb	
Vinyl chloride	ND	ug/L		0.40	SW8260B	07/10/14 20:37 / abb	
m+p-Xylenes	ND	ug/L		1.0	SW8260B	07/10/14 20:37 / abb	
o-Xylene	ND	ug/L		0.50	SW8260B	07/10/14 20:37 / abb	
Xylenes, Total	ND	ug/L		0.50	SW8260B	07/10/14 20:37 / abb	
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130	SW8260B	07/10/14 20:37 / abb	
Surr: Dibromofluoromethane	85.0	%REC		77-126	SW8260B	07/10/14 20:37 / abb	
Surr: p-Bromofluorobenzene	88.0	%REC		76-127	SW8260B	07/10/14 20:37 / abb	
Surr: Toluene-d8	86.0	%REC		79-122	SW8260B	07/10/14 20:37 / abb	

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14070033-002
Client Sample ID: TB 4199

Report Date: 07/13/14
Collection Date: 07/01/14 11:20
Date Received: 07/01/14
Matrix: Trip Blank

CHL-1407-101

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	07/10/14 20:06 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	07/10/14 20:06 / abb
Benzene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Bromoform	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	07/10/14 20:06 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Chloroform	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	07/10/14 20:06 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	07/10/14 20:06 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/10/14 20:06 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/10/14 20:06 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
2-Hexanone	ND	ug/L		20		SW8260B	07/10/14 20:06 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	07/10/14 20:06 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	07/10/14 20:06 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	07/10/14 20:06 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Styrene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Toluene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14070033-002
Client Sample ID: TB 4199

Report Date: 07/13/14
Collection Date: 07/01/14 11:20
Date Received: 07/01/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	07/10/14 20:06 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/10/14 20:06 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	07/10/14 20:06 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/10/14 20:06 / abb
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	07/10/14 20:06 / abb
Surr: Dibromofluoromethane	81.0	%REC		77-126		SW8260B	07/10/14 20:06 / abb
Surr: p-Bromofluorobenzene	93.0	%REC		76-127		SW8260B	07/10/14 20:06 / abb
Surr: Toluene-d8	91.0	%REC		79-122		SW8260B	07/10/14 20:06 / abb

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 07/13/14
Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Analytical Run: R98768		
Lab ID: 071014_CCV_2	Continuing Calibration Verification Standard							07/10/14 09:00	
trans-1,4-Dichloro-2-butene	4.44	ug/L	1.0	89	70	130			
Acetone	47.2	ug/L	20	94	70	130			
Acrylonitrile	39.0	ug/L	20	78	70	130			
Benzene	4.80	ug/L	1.0	96	70	130			
Bromochloromethane	3.72	ug/L	1.0	74	70	130			
Bromodichloromethane	4.12	ug/L	1.0	82	70	130			
Bromoform	4.16	ug/L	1.0	83	70	130			
Bromomethane	6.40	ug/L	1.0	128	70	130			
Carbon disulfide	4.32	ug/L	1.0	86	70	130			
Carbon tetrachloride	4.08	ug/L	1.0	82	70	130			
Chlorobenzene	5.16	ug/L	1.0	103	70	130			
Chlorodibromomethane	3.85	ug/L	1.0	77	70	130			
Chloroethane	5.88	ug/L	1.0	118	70	130			
Chloroform	4.28	ug/L	1.0	86	80	120			
Chloromethane	5.60	ug/L	1.0	112	70	130			
1,2-Dibromo-3-chloropropane	5.20	ug/L	1.0	104	70	130			
1,2-Dibromoethane	3.72	ug/L	1.0	74	70	130			
Dibromomethane	4.00	ug/L	1.0	80	70	130			
1,2-Dichlorobenzene	4.72	ug/L	1.0	94	70	130			
1,4-Dichlorobenzene	4.68	ug/L	1.0	94	70	130			
Dichlorodifluoromethane	4.20	ug/L	1.0	84	70	130			
1,1-Dichloroethane	3.90	ug/L	1.0	78	70	130			
1,2-Dichloroethane	4.48	ug/L	1.0	90	70	130			
1,1-Dichloroethene	4.40	ug/L	1.0	88	80	120			
cis-1,2-Dichloroethene	4.00	ug/L	1.0	80	70	130			
trans-1,2-Dichloroethene	4.24	ug/L	1.0	85	70	130			
1,2-Dichloropropane	4.80	ug/L	1.0	96	80	120			
cis-1,3-Dichloropropene	4.28	ug/L	1.0	86	70	130			
trans-1,3-Dichloropropene	3.70	ug/L	1.0	74	70	130			
Ethylbenzene	5.12	ug/L	1.0	102	80	120			
2-Hexanone	36.5	ug/L	20	73	70	130			
Iodomethane	3.96	ug/L	1.0	79	70	130			
Methyl ethyl ketone	35.2	ug/L	20	70	70	130			
Methyl isobutyl ketone	39.4	ug/L	20	79	70	130			
Methylene chloride	3.51	ug/L	1.0	70	70	130			
Styrene	4.36	ug/L	1.0	87	70	130			
1,1,1,2-Tetrachloroethane	5.08	ug/L	1.0	102	70	130			
1,1,2,2-Tetrachloroethane	5.32	ug/L	1.0	106	70	130			
Tetrachloroethene	4.84	ug/L	1.0	97	70	130			
Toluene	4.92	ug/L	1.0	98	80	120			
1,1,1-Trichloroethane	4.28	ug/L	1.0	86	70	130			
1,1,2-Trichloroethane	4.36	ug/L	1.0	87	70	130			
Trichloroethene	4.68	ug/L	1.0	94	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 07/13/14
Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: SW8260B

Analytical Run: R98768

Lab ID: 071014_CCV_2 Continuing Calibration Verification Standard 07/10/14 09:00

Trichlorofluoromethane	4.72	ug/L	1.0	94	70	130			
1,2,3-Trichloropropane	6.48	ug/L	1.0	130	70	130			
Vinyl acetate	3.80	ug/L	1.0	76	70	130			
Vinyl chloride	4.92	ug/L	1.0	98	80	120			
m+p-Xylenes	10.6	ug/L	1.0	106	70	130			
o-Xylene	5.32	ug/L	1.0	106	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	96	69	131			
Surr: Dibromofluoromethane			1.0	83	70	125			
Surr: p-Bromofluorobenzene			1.0	95	76	123			
Surr: Toluene-d8			1.0	100	80	119			

Method: SW8260B

Batch: R98768

Lab ID: 071014_LCS_3 Laboratory Control Sample Run: 1SATURN_140710A 07/10/14 09:37

trans-1,4-Dichloro-2-butene	4.92	ug/L	1.0	98	67	132			
Acetone	43.6	ug/L	20	87	55	144			
Acrylonitrile	43.6	ug/L	20	87	63	134			
Benzene	5.56	ug/L	1.0	111	69	129			
Bromochloromethane	4.00	ug/L	1.0	80	72	125			
Bromodichloromethane	4.64	ug/L	1.0	93	71	122			
Bromoform	4.68	ug/L	1.0	94	65	130			
Bromomethane	6.00	ug/L	1.0	120	60	136			
Carbon disulfide	5.20	ug/L	1.0	104	71	135			
Carbon tetrachloride	4.48	ug/L	1.0	90	77	121			
Chlorobenzene	5.16	ug/L	1.0	103	78	120			
Chlorodibromomethane	4.04	ug/L	1.0	81	70	122			
Chloroethane	5.80	ug/L	1.0	116	62	135			
Chloroform	4.24	ug/L	1.0	85	71	121			
Chloromethane	4.48	ug/L	1.0	90	66	139			
1,2-Dibromo-3-chloropropane	6.32	ug/L	1.0	126	59	130			
1,2-Dibromoethane	3.62	ug/L	1.0	72	60	137			
Dibromomethane	4.16	ug/L	1.0	83	69	122			
1,2-Dichlorobenzene	5.00	ug/L	1.0	100	74	122			
1,4-Dichlorobenzene	4.88	ug/L	1.0	98	75	122			
Dichlorodifluoromethane	3.40	ug/L	1.0	68	57	144			
1,1-Dichloroethane	4.52	ug/L	1.0	90	76	125			
1,2-Dichloroethane	4.76	ug/L	1.0	92	69	131			
1,1-Dichloroethene	4.84	ug/L	1.0	97	67	129			
cis-1,2-Dichloroethene	4.64	ug/L	1.0	93	75	122			
trans-1,2-Dichloroethene	4.84	ug/L	1.0	97	75	124			
1,2-Dichloropropane	5.36	ug/L	1.0	107	75	127			
cis-1,3-Dichloropropene	4.64	ug/L	1.0	93	73	124			
trans-1,3-Dichloropropene	3.93	ug/L	1.0	79	72	127			
Ethylbenzene	5.40	ug/L	1.0	108	74	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 07/13/14
Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: R98768		
Lab ID: 071014_LCS_3	Laboratory Control Sample				Run: 1SATURN_140710A		07/10/14 09:37		
2-Hexanone	35.8	ug/L	20	72	70	128			
Iodomethane	3.86	ug/L	1.0	77	52	130			
Methyl ethyl ketone	37.3	ug/L	20	75	56	141			
Methyl isobutyl ketone	38.6	ug/L	20	75	71	121			
Methylene chloride	3.90	ug/L	1.0	78	61	125			
Styrene	4.92	ug/L	1.0	98	75	120			
1,1,1,2-Tetrachloroethane	5.40	ug/L	1.0	108	76	122			
1,1,2,2-Tetrachloroethane	5.76	ug/L	1.0	115	67	124			
Tetrachloroethene	5.20	ug/L	1.0	104	75	126			
Toluene	5.20	ug/L	1.0	104	73	122			
1,1,1-Trichloroethane	4.72	ug/L	1.0	94	76	124			
1,1,2-Trichloroethane	4.80	ug/L	1.0	96	72	125			
Trichloroethene	5.24	ug/L	1.0	105	72	126			
Trichlorofluoromethane	4.88	ug/L	1.0	98	73	131			
1,2,3-Trichloropropane	7.16	ug/L	1.0	143	58	142			S
Vinyl acetate	4.56	ug/L	1.0	91	47	154			
Vinyl chloride	5.28	ug/L	1.0	106	69	129			
m+p-Xylenes	11.0	ug/L	1.0	110	72	124			
o-Xylene	5.32	ug/L	1.0	106	74	123			
Surr: 1,2-Dichloroethane-d4			1.0	102	69	131			
Surr: Dibromofluoromethane			1.0	84	70	125			
Surr: p-Bromofluorobenzene			1.0	93	76	123			
Surr: Toluene-d8			1.0	98	80	119			
Lab ID: 071014_MBLK_5	Method Blank				Run: 1SATURN_140710A		07/10/14 10:43		
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0						
Acetone	ND	ug/L	20						
Acrylonitrile	ND	ug/L	20						
Benzene	ND	ug/L	1.0						
Bromochloromethane	ND	ug/L	1.0						
Bromodichloromethane	ND	ug/L	1.0						
Bromoform	ND	ug/L	1.0						
Bromomethane	ND	ug/L	1.0						
Carbon disulfide	ND	ug/L	1.0						
Carbon tetrachloride	ND	ug/L	1.0						
Chlorobenzene	ND	ug/L	1.0						
Chlorodibromomethane	ND	ug/L	1.0						
Chloroethane	ND	ug/L	1.0						
Chloroform	ND	ug/L	1.0						
Chloromethane	ND	ug/L	1.0						
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0						
1,2-Dibromoethane	ND	ug/L	1.0						
Dibromomethane	ND	ug/L	1.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 07/13/14
Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									
Batch: R98768									
Lab ID: 071014_MBLK_5	Method Blank					Run: 1SATURN_140710A		07/10/14 10:43	
1,2-Dichlorobenzene	ND	ug/L	1.0						
1,4-Dichlorobenzene	ND	ug/L	1.0						
Dichlorodifluoromethane	ND	ug/L	1.0						
1,1-Dichloroethane	ND	ug/L	1.0						
1,2-Dichloroethane	ND	ug/L	1.0						
1,1-Dichloroethene	ND	ug/L	1.0						
cis-1,2-Dichloroethene	ND	ug/L	1.0						
trans-1,2-Dichloroethene	ND	ug/L	1.0						
1,2-Dichloropropane	ND	ug/L	1.0						
cis-1,3-Dichloropropene	ND	ug/L	1.0						
trans-1,3-Dichloropropene	ND	ug/L	1.0						
Ethylbenzene	ND	ug/L	1.0						
2-Hexanone	ND	ug/L	20						
Iodomethane	ND	ug/L	1.0						
Methyl ethyl ketone	ND	ug/L	20						
Methyl isobutyl ketone	ND	ug/L	20						
Methylene chloride	ND	ug/L	1.0						
Styrene	ND	ug/L	1.0						
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0						
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0						
Tetrachloroethene	ND	ug/L	1.0						
Toluene	ND	ug/L	1.0						
1,1,1-Trichloroethane	ND	ug/L	1.0						
1,1,2-Trichloroethane	ND	ug/L	1.0						
Trichloroethene	ND	ug/L	1.0						
Trichlorofluoromethane	ND	ug/L	1.0						
1,2,3-Trichloropropane	ND	ug/L	1.0						
Vinyl acetate	ND	ug/L	1.0						
Vinyl chloride	ND	ug/L	1.0						
m+p-Xylenes	ND	ug/L	1.0						
o-Xylene	ND	ug/L	1.0						
Surr: 1,2-Dichloroethane-d4			1.0	96	69	131			
Surr: Dibromofluoromethane			1.0	88	70	125			
Surr: p-Bromofluorobenzene			1.0	112	76	123			
Surr: Toluene-d8			1.0	92	80	119			
Lab ID: H14060600-001CMS	Sample Matrix Spike					Run: 1SATURN_140710A		07/10/14 22:39	
trans-1,4-Dichloro-2-butene	7.34	ug/L	1.0	73	67	132			
Acetone	80.8	ug/L	40	81	55	144			
Acrylonitrile	77.0	ug/L	40	77	63	134			
Benzene	8.32	ug/L	1.0	83	69	129			
Bromochloromethane	6.99	ug/L	1.0	70	72	125			S
Bromodichloromethane	7.44	ug/L	1.0	74	71	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 07/13/14

Project: 1273 City of Helena

Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Batch: R98768							
Lab ID: H14060600-001CMS	Sample Matrix Spike		Run: 1SATURN_140710A				07/10/14 22:39		
Bromoform	7.78	ug/L	1.0	78	65	130			
Bromomethane	12.1	ug/L	1.0	121	60	136			
Carbon disulfide	8.24	ug/L	1.0	82	71	135			
Carbon tetrachloride	7.50	ug/L	1.0	75	77	121			S
Chlorobenzene	9.44	ug/L	1.0	94	78	120			
Chlorodibromomethane	7.02	ug/L	1.0	70	70	122			
Chloroethane	12.0	ug/L	1.0	120	62	135			
Chloroform	7.32	ug/L	1.0	73	71	121			
Chloromethane	10.2	ug/L	1.0	102	66	139			
1,2-Dibromo-3-chloropropane	11.7	ug/L	1.0	117	59	130			
1,2-Dibromoethane	6.80	ug/L	1.0	68	60	137			
Dibromomethane	7.72	ug/L	1.0	77	69	122			
1,2-Dichlorobenzene	8.72	ug/L	1.0	87	74	122			
1,4-Dichlorobenzene	6.64	ug/L	1.0	66	75	122			S
Dichlorodifluoromethane	8.00	ug/L	1.0	80	57	144			
1,1-Dichloroethane	7.26	ug/L	1.0	73	76	125			S
1,2-Dichloroethane	9.20	ug/L	1.0	92	69	131			
1,1-Dichloroethene	7.64	ug/L	1.0	76	67	129			
cis-1,2-Dichloroethene	7.43	ug/L	1.0	74	75	122			S
trans-1,2-Dichloroethene	7.67	ug/L	1.0	77	75	124			
1,2-Dichloropropane	9.44	ug/L	1.0	94	75	127			
cis-1,3-Dichloropropene	7.93	ug/L	1.0	79	73	124			
trans-1,3-Dichloropropene	6.34	ug/L	1.0	63	72	127			S
Ethylbenzene	9.04	ug/L	1.0	90	74	125			
2-Hexanone	76.6	ug/L	40	77	70	128			
Iodomethane	6.51	ug/L	1.0	65	52	130			
Methyl ethyl ketone	72.6	ug/L	40	73	56	141			
Methyl isobutyl ketone	80.8	ug/L	40	81	71	121			
Methylene chloride	7.19	ug/L	1.0	72	61	125			
Styrene	8.16	ug/L	1.0	82	75	120			
1,1,1,2-Tetrachloroethane	8.96	ug/L	1.0	90	76	122			
1,1,2,2-Tetrachloroethane	8.88	ug/L	1.0	89	67	124			
Tetrachloroethene	8.48	ug/L	1.0	85	75	126			
Toluene	8.40	ug/L	1.0	84	73	122			
1,1,1-Trichloroethane	7.62	ug/L	1.0	76	76	124			
1,1,2-Trichloroethane	8.64	ug/L	1.0	86	72	125			
Trichloroethene	7.94	ug/L	1.0	79	72	126			
Trichlorofluoromethane	8.96	ug/L	1.0	90	73	131			
1,2,3-Trichloropropane	13.8	ug/L	1.0	138	58	142			
Vinyl acetate	7.73	ug/L	1.0	77	47	154			
Vinyl chloride	10.0	ug/L	1.0	100	69	129			
m+p-Xylenes	18.9	ug/L	1.0	94	72	124			
o-Xylene	9.04	ug/L	1.0	90	74	123			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 07/13/14
Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R98768
Lab ID: H14060600-001CMS	Sample Matrix Spike		Run: 1SATURN_140710A				07/10/14 22:39		
Surr: 1,2-Dichloroethane-d4			2.0	105	69	131			
Surr: Dibromofluoromethane			2.0	82	70	125			
Surr: p-Bromofluorobenzene			2.0	84	76	123			
Surr: Toluene-d8			2.0	89	80	119			
Lab ID: H14060600-001CMSD	Sample Matrix Spike Duplicate		Run: 1SATURN_140710A				07/10/14 23:09		
trans-1,4-Dichloro-2-butene	8.40	ug/L	1.0	84	67	132	13	20	
Acetone	94.4	ug/L	40	94	55	144	16	20	
Acrylonitrile	79.7	ug/L	40	80	63	134	3.4	20	
Benzene	8.96	ug/L	1.0	90	69	129	7.4	20	
Bromochloromethane	7.22	ug/L	1.0	72	72	125	3.2	20	
Bromodichloromethane	8.40	ug/L	1.0	84	71	122	12	20	
Bromoform	8.32	ug/L	1.0	83	65	130	6.8	20	
Bromomethane	12.6	ug/L	1.0	126	60	136	3.9	20	
Carbon disulfide	8.56	ug/L	1.0	86	71	135	3.8	20	
Carbon tetrachloride	7.79	ug/L	1.0	78	77	121	3.9	20	
Chlorobenzene	10.2	ug/L	1.0	102	78	120	7.3	20	
Chlorodibromomethane	8.08	ug/L	1.0	81	70	122	14	20	
Chloroethane	11.7	ug/L	1.0	117	62	135	2.7	20	
Chloroform	8.08	ug/L	1.0	81	71	121	9.9	20	
Chloromethane	10.6	ug/L	1.0	106	66	139	4.6	20	
1,2-Dibromo-3-chloropropane	9.52	ug/L	1.0	95	59	130	20	20	R
1,2-Dibromoethane	7.75	ug/L	1.0	78	60	137	13	20	
Dibromomethane	8.64	ug/L	1.0	86	69	122	11	20	
1,2-Dichlorobenzene	9.44	ug/L	1.0	94	74	122	7.9	20	
1,4-Dichlorobenzene	7.00	ug/L	1.0	70	75	122	5.3	20	S
Dichlorodifluoromethane	7.87	ug/L	1.0	79	57	144	1.6	20	
1,1-Dichloroethane	8.00	ug/L	1.0	80	76	125	9.6	20	
1,2-Dichloroethane	9.68	ug/L	1.0	97	69	131	5.1	20	
1,1-Dichloroethene	8.48	ug/L	1.0	85	67	129	10	20	
cis-1,2-Dichloroethene	8.32	ug/L	1.0	83	75	122	11	20	
trans-1,2-Dichloroethene	8.16	ug/L	1.0	82	75	124	6.2	20	
1,2-Dichloropropane	10.4	ug/L	1.0	104	75	127	9.7	20	
cis-1,3-Dichloropropene	8.96	ug/L	1.0	90	73	124	12	20	
trans-1,3-Dichloropropene	7.56	ug/L	1.0	76	72	127	18	20	
Ethylbenzene	10.2	ug/L	1.0	102	74	125	12	20	
2-Hexanone	79.9	ug/L	40	80	70	128	4.2	20	
Iodomethane	7.26	ug/L	1.0	73	52	130	11	20	
Methyl ethyl ketone	78.1	ug/L	40	78	56	141	7.2	20	
Methyl isobutyl ketone	100	ug/L	40	100	71	121	21	20	R
Methylene chloride	7.61	ug/L	1.0	76	61	125	5.6	20	
Styrene	9.12	ug/L	1.0	91	75	120	11	20	
1,1,1,2-Tetrachloroethane	10.2	ug/L	1.0	102	76	122	13	20	

Qualifiers:

RL - Analyte reporting limit.
R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 07/13/14
Work Order: H14070033

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R98768
Lab ID: H14060600-001CMSD	Sample Matrix Spike Duplicate				Run: 1SATURN_140710A			07/10/14 23:09	
1,1,2,2-Tetrachloroethane	9.92	ug/L	1.0	99	67	124	11	20	
Tetrachloroethene	9.28	ug/L	1.0	93	75	126	9.0	20	
Toluene	9.60	ug/L	1.0	96	73	122	13	20	
1,1,1-Trichloroethane	8.32	ug/L	1.0	83	76	124	8.7	20	
1,1,2-Trichloroethane	9.60	ug/L	1.0	96	72	125	11	20	
Trichloroethene	9.68	ug/L	1.0	97	72	126	20	20	
Trichlorofluoromethane	8.88	ug/L	1.0	89	73	131	0.9	20	
1,2,3-Trichloropropane	12.4	ug/L	1.0	124	58	142	11	20	
Vinyl acetate	8.16	ug/L	1.0	82	47	154	5.4	20	
Vinyl chloride	10.1	ug/L	1.0	101	69	129	0.8	20	
m+p-Xylenes	21.8	ug/L	1.0	109	72	124	14	20	
o-Xylene	10.0	ug/L	1.0	100	74	123	10	20	
Surr: 1,2-Dichloroethane-d4			2.0	103	69	131			
Surr: Dibromofluoromethane			2.0	83	70	125			
Surr: p-Bromofluorobenzene			2.0	89	76	123			
Surr: Toluene-d8			2.0	97	80	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Hydrometrics Inc

H14070033

Login completed by: Tracy L. Lorash

Date Received: 7/1/2014

Reviewed by: BL2000\kwiegand

Received by: TLL

Reviewed Date: 7/9/2014

Carrier UPS Ground
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	8.6°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

COC has Commons column marked for analysis - only received vials for 8260. tl 7/1/14



3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

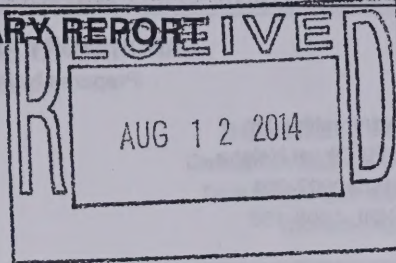
CHAIN OF CUSTODY RECORD

[illegible]

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

[illegible]

ANALYTICAL SUMMARY REPORT



August 12, 2014

Hydrometrics Inc
3020 Bozeman Ave
Helena, MT 59601

Work Order: H14080007

Project Name: 1273 City of Helena

Energy Laboratories Inc Helena MT received the following 2 samples for Hydrometrics Inc on 8/1/2014 for analysis.

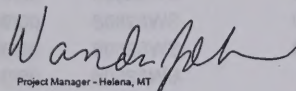
Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14080007-001	CHHL-1408-100	08/01/14 9:25	08/01/14	Aqueous	8260-Volatile Organic Comp, 40 CFR Part 258 App I
H14080007-002	TB 4252	08/01/14 9:25	08/01/14	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2014.08.12 13:32:04 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14080007-001
Client Sample ID: CHHL-1408-100

Report Date: 08/12/14
Collection Date: 08/01/14 09:25
Date Received: 08/01/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	08/08/14 12:44 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	08/08/14 12:44 / abb
Benzene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Bromoform	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	08/08/14 12:44 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Chloroform	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	08/08/14 12:44 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	08/08/14 12:44 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	08/08/14 12:44 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	08/08/14 12:44 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
2-Hexanone	ND	ug/L		20		SW8260B	08/08/14 12:44 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	08/08/14 12:44 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	08/08/14 12:44 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	08/08/14 12:44 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Styrene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Toluene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14080007-001
Client Sample ID: CHHL-1408-100

Report Date: 08/12/14
Collection Date: 08/01/14 09:25
Date Received: 08/01/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	08/08/14 12:44 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	08/08/14 12:44 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	08/08/14 12:44 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	08/08/14 12:44 / abb
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	08/08/14 12:44 / abb
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	08/08/14 12:44 / abb
Surr: p-Bromofluorobenzene	113	%REC		76-127		SW8260B	08/08/14 12:44 / abb
Surr: Toluene-d8	92.0	%REC		79-122		SW8260B	08/08/14 12:44 / abb

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14080007-002
Client Sample ID: TB 4252

Report Date: 08/12/14
Collection Date: 08/01/14 09:25
Date Received: 08/01/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	08/08/14 12:15 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	08/08/14 12:15 / abb
Benzene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Bromoform	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	08/08/14 12:15 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Chloroform	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	08/08/14 12:15 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	08/08/14 12:15 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	08/08/14 12:15 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	08/08/14 12:15 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
2-Hexanone	ND	ug/L		20		SW8260B	08/08/14 12:15 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	08/08/14 12:15 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	08/08/14 12:15 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	08/08/14 12:15 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Styrene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Toluene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb

Report: RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14080007-002
Client Sample ID: TB 4252

Report Date: 08/12/14
Collection Date: 08/01/14 09:25
DateReceived: 08/01/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	08/08/14 12:15 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	08/08/14 12:15 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	08/08/14 12:15 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	08/08/14 12:15 / abb
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	08/08/14 12:15 / abb
Surr: Dibromofluoromethane	115	%REC		77-126		SW8260B	08/08/14 12:15 / abb
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	08/08/14 12:15 / abb
Surr: Toluene-d8	97.0	%REC		79-122		SW8260B	08/08/14 12:15 / abb

Report ... RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 08/12/14
Work Order: H14080007

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Analytical Run: R99597
Lab ID: 080814_CCV_2	53 Continuing Calibration Verification Standard									08/08/14 08:20
trans-1,4-Dichloro-2-butene		6.20	ug/L	1.0	124	70	130			
Acetone		44.0	ug/L	20	88	70	130			
Acrylonitrile		43.6	ug/L	20	87	70	130			
Benzene		5.08	ug/L	1.0	102	70	130			
Bromochloromethane		4.80	ug/L	1.0	96	70	130			
Bromodichloromethane		4.68	ug/L	1.0	94	70	130			
Bromoform		5.96	ug/L	1.0	119	70	130			
Bromomethane		5.72	ug/L	1.0	114	70	130			
Carbon disulfide		5.00	ug/L	1.0	100	70	130			
Carbon tetrachloride		4.84	ug/L	1.0	97	70	130			
Chlorobenzene		4.76	ug/L	1.0	95	70	130			
Chlorodibromomethane		5.32	ug/L	1.0	106	70	130			
Chloroethane		4.92	ug/L	1.0	98	70	130			
Chloroform		4.56	ug/L	1.0	91	80	120			
Chloromethane		6.20	ug/L	1.0	124	70	130			
1,2-Dibromo-3-chloropropane		4.60	ug/L	1.0	92	70	130			
1,2-Dibromoethane		4.72	ug/L	1.0	94	70	130			
Dibromomethane		4.80	ug/L	1.0	96	70	130			
1,2-Dichlorobenzene		5.04	ug/L	1.0	101	70	130			
1,4-Dichlorobenzene		5.16	ug/L	1.0	103	70	130			
Dichlorodifluoromethane		6.16	ug/L	1.0	123	70	130			
1,1-Dichloroethane		5.16	ug/L	1.0	103	70	130			
1,2-Dichloroethane		4.20	ug/L	1.0	84	70	130			
1,1-Dichloroethene		5.60	ug/L	1.0	112	80	120			
cis-1,2-Dichloroethene		4.64	ug/L	1.0	93	70	130			
trans-1,2-Dichloroethene		5.12	ug/L	1.0	102	70	130			
1,2-Dichloropropane		4.80	ug/L	1.0	96	80	120			
cis-1,3-Dichloropropene		4.84	ug/L	1.0	97	70	130			
trans-1,3-Dichloropropene		4.40	ug/L	1.0	88	70	130			
Ethylbenzene		4.88	ug/L	1.0	98	80	120			
2-Hexanone		50.0	ug/L	20	100	70	130			
Iodomethane		4.92	ug/L	1.0	98	70	130			
Methyl ethyl ketone		44.8	ug/L	20	90	70	130			
Methyl isobutyl ketone		48.0	ug/L	20	96	70	130			
Methylene chloride		4.36	ug/L	1.0	87	70	130			
Styrene		4.64	ug/L	1.0	93	70	130			
1,1,1,2-Tetrachloroethane		4.88	ug/L	1.0	98	70	130			
1,1,2,2-Tetrachloroethane		5.84	ug/L	1.0	117	70	130			
Tetrachloroethene		4.60	ug/L	1.0	92	70	130			
Toluene		4.92	ug/L	1.0	98	80	120			
1,1,1-Trichloroethane		5.00	ug/L	1.0	100	70	130			
1,1,2-Trichloroethane		4.80	ug/L	1.0	96	70	130			
Trichloroethene		4.40	ug/L	1.0	88	70	130			
Trichlorofluoromethane		5.48	ug/L	1.0	110	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 08/12/14

Project: 1273 City of Helena

Work Order: H14080007

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: R99597		
Lab ID: 080814_CCV_2								53 Continuing Calibration Verification Standard		
								08/08/14 08:20		
1,2,3-Trichloropropane		5.84	ug/L	1.0	117	70	130			
Vinyl acetate		4.40	ug/L	1.0	88	70	130			
Vinyl chloride		5.00	ug/L	1.0	100	80	120			
m+p-Xylenes		9.32	ug/L	1.0	93	70	130			
o-Xylene		5.04	ug/L	1.0	101	70	130			
Surr: 1,2-Dichloroethane-d4				1.0	98	69	131			
Surr: Dibromofluoromethane				1.0	106	70	125			
Surr: p-Bromofluorobenzene				1.0	123	76	123			
Surr: Toluene-d8				1.0	101	80	119			
Method: SW8260B								Batch: R99597		
Lab ID: 080814_LCS_3								53 Laboratory Control Sample		
								Run: 1SATURN_140808A		
								08/08/14 09:00		
trans-1,4-Dichloro-2-butene		6.00	ug/L	1.0	120	67	132			
Acetone		46.4	ug/L	20	93	55	144			
Acrylonitrile		43.2	ug/L	20	86	63	134			
Benzene		5.08	ug/L	1.0	102	69	129			
Bromochloromethane		4.88	ug/L	1.0	98	72	125			
Bromodichloromethane		4.64	ug/L	1.0	93	71	122			
Bromoform		5.80	ug/L	1.0	116	65	130			
Bromomethane		4.92	ug/L	1.0	98	60	136			
Carbon disulfide		4.52	ug/L	1.0	90	71	135			
Carbon tetrachloride		5.04	ug/L	1.0	101	77	121			
Chlorobenzene		4.76	ug/L	1.0	95	78	120			
Chlorodibromomethane		5.44	ug/L	1.0	109	70	122			
Chloroethane		4.60	ug/L	1.0	92	62	135			
Chloroform		4.64	ug/L	1.0	93	71	121			
Chloromethane		4.88	ug/L	1.0	98	66	139			
1,2-Dibromo-3-chloropropane		4.72	ug/L	1.0	94	59	130			
1,2-Dibromoethane		4.64	ug/L	1.0	93	60	137			
Dibromomethane		4.76	ug/L	1.0	95	69	122			
1,2-Dichlorobenzene		4.60	ug/L	1.0	92	74	122			
1,4-Dichlorobenzene		4.88	ug/L	1.0	98	75	122			
Dichlorodifluoromethane		5.32	ug/L	1.0	106	57	144			
1,1-Dichloroethane		4.84	ug/L	1.0	97	76	125			
1,2-Dichloroethane		4.40	ug/L	1.0	88	69	131			
1,1-Dichloroethene		5.12	ug/L	1.0	102	67	129			
cis-1,2-Dichloroethene		4.80	ug/L	1.0	96	75	122			
trans-1,2-Dichloroethene		5.44	ug/L	1.0	109	75	124			
1,2-Dichloropropane		5.32	ug/L	1.0	106	75	127			
cis-1,3-Dichloropropene		5.20	ug/L	1.0	104	73	124			
trans-1,3-Dichloropropene		4.56	ug/L	1.0	91	72	127			
Ethylbenzene		5.12	ug/L	1.0	102	74	125			
2-Hexanone		47.2	ug/L	20	94	70	128			
Iodomethane		3.93	ug/L	1.0	79	52	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 08/12/14

Project: 1273 City of Helena

Work Order: H14080007

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R99597
Lab ID: 080814_LCS_3	53	Laboratory Control Sample				Run: 1SATURN_140808A			08/08/14 09:00	
Methyl ethyl ketone		44.4	ug/L	20	89	56	141			
Methyl isobutyl ketone		50.8	ug/L	20	102	71	121			
Methylene chloride		4.36	ug/L	1.0	87	61	125			
Styrene		4.72	ug/L	1.0	94	75	120			
1,1,1,2-Tetrachloroethane		4.84	ug/L	1.0	97	76	122			
1,1,2,2-Tetrachloroethane		5.68	ug/L	1.0	114	67	124			
Tetrachloroethene		4.64	ug/L	1.0	93	75	126			
Toluene		5.00	ug/L	1.0	100	73	122			
1,1,1-Trichloroethane		5.00	ug/L	1.0	100	76	124			
1,1,2-Trichloroethane		4.80	ug/L	1.0	96	72	125			
Trichloroethene		5.08	ug/L	1.0	102	72	126			
Trichlorofluoromethane		5.76	ug/L	1.0	115	73	131			
1,2,3-Trichloropropane		5.40	ug/L	1.0	108	58	142			
Vinyl acetate		5.04	ug/L	1.0	101	47	154			
Vinyl chloride		5.84	ug/L	1.0	117	69	129			
m+p-Xylenes		9.40	ug/L	1.0	94	72	124			
o-Xylene		4.80	ug/L	1.0	96	74	123			
Surr: 1,2-Dichloroethane-d4				1.0	107	69	131			
Surr: Dibromofluoromethane				1.0	113	70	125			
Surr: p-Bromofluorobenzene				1.0	119	76	123			
Surr: Toluene-d8				1.0	104	80	119			
Lab ID: H14080007-001AMS	53	Sample Matrix Spike				Run: 1SATURN_140808A			08/08/14 18:40	
trans-1,4-Dichloro-2-butene		5.16	ug/L	1.0	103	67	132			
Acetone		53.2	ug/L	20	106	55	144			
Acrylonitrile		56.0	ug/L	20	112	63	134			
Benzene		4.88	ug/L	1.0	98	69	129			
Bromochloromethane		4.60	ug/L	1.0	92	72	125			
Bromodichloromethane		4.84	ug/L	1.0	97	71	122			
Bromoform		4.96	ug/L	1.0	99	65	130			
Bromomethane		4.44	ug/L	1.0	89	60	136			
Carbon disulfide		4.72	ug/L	1.0	94	71	135			
Carbon tetrachloride		4.60	ug/L	1.0	92	77	121			
Chlorobenzene		4.56	ug/L	1.0	91	78	120			
Chlorodibromomethane		5.40	ug/L	1.0	108	70	122			
Chloroethane		4.52	ug/L	1.0	90	62	135			
Chloroform		4.60	ug/L	1.0	92	71	121			
Chloromethane		4.36	ug/L	1.0	87	66	139			
1,2-Dibromo-3-chloropropane		4.28	ug/L	1.0	86	59	130			
1,2-Dibromoethane		4.96	ug/L	1.0	99	60	137			
Dibromomethane		4.96	ug/L	1.0	99	69	122			
1,2-Dichlorobenzene		4.20	ug/L	1.0	84	74	122			
1,4-Dichlorobenzene		4.60	ug/L	1.0	92	75	122			
Dichlorodifluoromethane		4.76	ug/L	1.0	95	57	144			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 08/12/14
Work Order: H14080007

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R99597
Lab ID: H14080007-001AMS	53	Sample Matrix Spike				Run: 1SATURN_140808A			08/08/14 18:40	
1,1-Dichloroethane		4.56	ug/L	1.0	91	76	125			
1,2-Dichloroethane		4.88	ug/L	1.0	98	69	131			
1,1-Dichloroethene		4.56	ug/L	1.0	91	67	129			
cis-1,2-Dichloroethene		4.92	ug/L	1.0	98	75	122			
trans-1,2-Dichloroethene		5.08	ug/L	1.0	102	75	124			
1,2-Dichloropropane		4.60	ug/L	1.0	92	75	127			
cis-1,3-Dichloropropene		4.96	ug/L	1.0	99	73	124			
trans-1,3-Dichloropropene		4.56	ug/L	1.0	91	72	127			
Ethylbenzene		4.76	ug/L	1.0	95	74	125			
2-Hexanone		51.6	ug/L	20	103	70	128			
Iodomethane		3.72	ug/L	1.0	74	52	130			
Methyl ethyl ketone		40.4	ug/L	20	81	56	141			
Methyl isobutyl ketone		50.4	ug/L	20	101	71	121			
Methylene chloride		4.52	ug/L	1.0	90	61	125			
Styrene		4.72	ug/L	1.0	94	75	120			
1,1,1,2-Tetrachloroethane		4.80	ug/L	1.0	96	76	122			
1,1,2,2-Tetrachloroethane		5.04	ug/L	1.0	101	67	124			
Tetrachloroethene		4.36	ug/L	1.0	87	75	126			
Toluene		4.56	ug/L	1.0	91	73	122			
1,1,1-Trichloroethane		4.68	ug/L	1.0	94	76	124			
1,1,2-Trichloroethane		4.72	ug/L	1.0	94	72	125			
Trichloroethene		4.84	ug/L	1.0	97	72	126			
Trichlorofluoromethane		5.00	ug/L	1.0	100	73	131			
1,2,3-Trichloropropane		5.12	ug/L	1.0	102	58	142			
Vinyl acetate		5.08	ug/L	1.0	102	47	154			
Vinyl chloride		5.08	ug/L	1.0	102	69	129			
m+p-Xylenes		8.96	ug/L	1.0	90	72	124			
o-Xylene		4.36	ug/L	1.0	87	74	123			
Surr: 1,2-Dichloroethane-d4				1.0	110	69	131			
Surr: Dibromofluoromethane				1.0	108	70	125			
Surr: p-Bromofluorobenzene				1.0	99	76	123			
Surr: Toluene-d8				1.0	95	80	119			

- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.

Lab ID: H14080007-001AMSD	53	Sample Matrix Spike Duplicate				Run: 1SATURN_140808A			08/08/14 19:10	
trans-1,4-Dichloro-2-butene		5.32	ug/L	1.0	106	67	132	3.1	20	
Acetone		53.2	ug/L	20	106	55	144	0.0	20	
Acrylonitrile		52.4	ug/L	20	105	63	134	6.6	20	
Benzene		4.60	ug/L	1.0	92	69	129	5.9	20	
Bromochloromethane		4.48	ug/L	1.0	90	72	125	2.6	20	
Bromodichloromethane		4.80	ug/L	1.0	96	71	122	0.8	20	
Bromoform		5.36	ug/L	1.0	107	65	130	7.8	20	
Bromomethane		4.28	ug/L	1.0	86	60	136	3.7	20	
Carbon disulfide		4.76	ug/L	1.0	95	71	135	0.8	20	
Carbon tetrachloride		4.60	ug/L	1.0	92	77	121	0.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 08/12/14

Project: 1273 City of Helena

Work Order: H14080007

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R99597
Lab ID: H14080007-001AMSD 53 Sample Matrix Spike Duplicate										Run: 1SATURN_140808A 08/08/14 19:10
Chlorobenzene		4.68	ug/L	1.0	94	78	120	2.6	20	
Chlorodibromomethane		5.60	ug/L	1.0	112	70	122	3.6	20	
Chloroethane		4.24	ug/L	1.0	85	62	135	6.4	20	
Chloroform		4.48	ug/L	1.0	90	71	121	2.6	20	
Chloromethane		4.08	ug/L	1.0	82	66	139	6.6	20	
1,2-Dibromo-3-chloropropane		4.60	ug/L	1.0	92	59	130	7.2	20	
1,2-Dibromoethane		5.04	ug/L	1.0	101	60	137	1.6	20	
Dibromomethane		4.80	ug/L	1.0	96	69	122	3.3	20	
1,2-Dichlorobenzene		4.40	ug/L	1.0	88	74	122	4.7	20	
1,4-Dichlorobenzene		3.96	ug/L	1.0	79	75	122	15	20	
Dichlorodifluoromethane		4.80	ug/L	1.0	96	57	144	0.8	20	
1,1-Dichloroethane		4.60	ug/L	1.0	92	76	125	0.9	20	
1,2-Dichloroethane		4.92	ug/L	1.0	98	69	131	0.8	20	
1,1-Dichloroethene		4.52	ug/L	1.0	90	67	129	0.9	20	
cis-1,2-Dichloroethene		4.84	ug/L	1.0	97	75	122	1.6	20	
trans-1,2-Dichloroethene		5.04	ug/L	1.0	101	75	124	0.8	20	
1,2-Dichloropropane		4.72	ug/L	1.0	94	75	127	2.6	20	
cis-1,3-Dichloropropene		5.12	ug/L	1.0	102	73	124	3.2	20	
trans-1,3-Dichloropropene		4.40	ug/L	1.0	88	72	127	3.6	20	
Ethylbenzene		4.76	ug/L	1.0	95	74	125	0.0	20	
2-Hexanone		58.4	ug/L	20	117	70	128	12	20	
Iodomethane		3.64	ug/L	1.0	73	52	130	2.2	20	
Methyl ethyl ketone		49.6	ug/L	20	99	56	141	20	20	R
Methyl isobutyl ketone		56.4	ug/L	20	113	71	121	11	20	
Methylene chloride		4.24	ug/L	1.0	85	61	125	6.4	20	
Styrene		4.88	ug/L	1.0	98	75	120	3.3	20	
1,1,1,2-Tetrachloroethane		4.92	ug/L	1.0	98	76	122	2.5	20	
1,1,2,2-Tetrachloroethane		4.92	ug/L	1.0	98	67	124	2.4	20	
Tetrachloroethene		4.68	ug/L	1.0	94	75	126	7.1	20	
Toluene		4.60	ug/L	1.0	92	73	122	0.9	20	
1,1,1-Trichloroethane		4.60	ug/L	1.0	92	76	124	1.7	20	
1,1,2-Trichloroethane		4.92	ug/L	1.0	98	72	125	4.1	20	
Trichloroethene		4.48	ug/L	1.0	90	72	126	7.7	20	
Trichlorofluoromethane		4.68	ug/L	1.0	94	73	131	6.6	20	
1,2,3-Trichloropropane		5.28	ug/L	1.0	106	58	142	3.1	20	
Vinyl acetate		5.12	ug/L	1.0	102	47	154	0.8	20	
Vinyl chloride		5.24	ug/L	1.0	105	69	129	3.1	20	
m+p-Xylenes		9.48	ug/L	1.0	95	72	124	5.6	20	
o-Xylene		4.36	ug/L	1.0	87	74	123	0.0	20	
Surr: 1,2-Dichloroethane-d4				1.0	111	69	131			
Surr: Dibromofluoromethane				1.0	110	70	125			
Surr: p-Bromofluorobenzene				1.0	102	76	123			
Surr: Toluene-d8				1.0	97	80	119			

- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 08/12/14
Work Order: H14080007

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R99597
Lab ID: 080814_MBLK_5	54	Method Blank				Run: 1SATURN_140808A				08/08/14 10:10
Acetone		ND	ug/L	20						
Acrylonitrile		ND	ug/L	3.0						
Benzene		ND	ug/L	0.50						
Bromochloromethane		ND	ug/L	0.50						
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Bromomethane		ND	ug/L	0.50						
Carbon disulfide		ND	ug/L	1.0						
Carbon tetrachloride		ND	ug/L	0.50						
Chlorobenzene		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Chloromethane		ND	ug/L	0.50						
1,2-Dibromo-3-chloropropane		ND	ug/L	1.0						
1,2-Dibromoethane		ND	ug/L	0.50						
Dibromomethane		ND	ug/L	0.50						
1,2-Dichlorobenzene		ND	ug/L	0.50						
1,4-Dichlorobenzene		ND	ug/L	0.50						
trans-1,4-Dichloro-2-butene		ND	ug/L	1.0						
Dichlorodifluoromethane		ND	ug/L	0.50						
1,1-Dichloroethane		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
1,1-Dichloroethene		ND	ug/L	0.50						
cis-1,2-Dichloroethene		ND	ug/L	0.50						
trans-1,2-Dichloroethene		ND	ug/L	0.50						
1,2-Dichloropropane		ND	ug/L	0.50						
cis-1,3-Dichloropropene		ND	ug/L	0.30						
trans-1,3-Dichloropropene		ND	ug/L	0.30						
Ethylbenzene		ND	ug/L	0.50						
2-Hexanone		ND	ug/L	20						
Iodomethane		ND	ug/L	1.0						
Methyl ethyl ketone		ND	ug/L	20						
Methyl isobutyl ketone		ND	ug/L	20						
Methylene chloride		ND	ug/L	0.50						
Styrene		ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane		ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane		ND	ug/L	0.50						
Tetrachloroethene		ND	ug/L	0.50						
Toluene		ND	ug/L	0.50						
1,1,1-Trichloroethane		ND	ug/L	0.50						
1,1,2-Trichloroethane		ND	ug/L	0.50						
Trichloroethene		ND	ug/L	0.50						
Trichlorofluoromethane		ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Prepared by Helena, MT Branch

Report Date: 08/12/14
Work Order: H14080007

Qualifiers:

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Hydrometrics Inc

H14080007

Login completed by: Amanda B. Blackburn

Date Received: 8/1/2014

Reviewed by: BL2000\williams

Received by: TLL

Reviewed Date: 8/5/2014

Carrier Hand Del
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.6°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

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3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

HFORM-1 07/11
TNO 406-443-8550

Return results & electronic copy to:
QA / QC Dept. at address at top of page

SITE	SAMPLE X	DATE	TIME	BOTTLES
SPRINKER STA	CHNL-	8/1/14	09:25	3/UF / HCl / VOCs
	1408-			1 TRIP BLANK
	100			

WEATHER: 60° F, BREEZE, P. CLOUDY

NOTES:

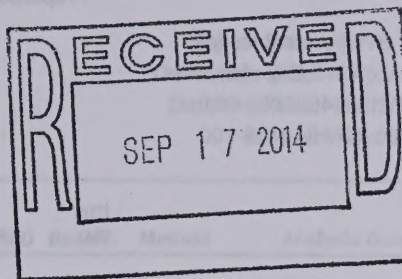
HL-99-2 HAS LEAK @ PVC JOINT
LOTS OF MOUSE DROPPINGS AROUND
BOTTOM

SITE	TIME	Hour	FLOW	TOTALIZER
HL-99-1	08:46	1531.0	12.06	- COULD NOT GET TO SWITCH DISPLAY.
HL-99-2	08:56	1531.0	19.78	T ₁ = 145744 T ₂ = 142709
HL-99-3	09:05	1531.1	31.94	T ₁ = 169724 T ₂ = 309904

ANALYTICAL SUMMARY REPORT

September 15, 2014

Hydrometrics Inc
3020 Bozeman Ave
Helena, MT 59601

Work Order: H14090061
Project Name: 1273 City of Helena


Energy Laboratories Inc Helena MT received the following 2 samples for Hydrometrics Inc on 9/3/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14090061-001	CHHL-1409-100	09/03/14 9:30	09/03/14	Aqueous	8260-Volatile Organic Comp, 40 CFR Part 258 App I
H14090061-002	TB 4322	09/03/14 9:30	09/03/14	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2014.09.15 10:56:16 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14090061-001
Client Sample ID: CHHL-1409-100

Report Date: 09/15/14
Collection Date: 09/03/14 09:30
Date Received: 09/03/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/09/14 16:17 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/09/14 16:17 / abb
Benzene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Bromoform	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/09/14 16:17 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Chloroform	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/09/14 16:17 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/09/14 16:17 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/09/14 16:17 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/09/14 16:17 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
2-Hexanone	ND	ug/L		20		SW8260B	09/09/14 16:17 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	09/09/14 16:17 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/09/14 16:17 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/09/14 16:17 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Styrene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Toluene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 16:17 / abb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Prepared by Helena, MT Branch

Report Date: 09/15/14
Collection Date: 09/03/14 09:30
DateReceived: 09/03/14
Matrix: Aqueous

Report RL - Analyte reporting limit. MCL - Maximum contaminant level.
Definitions: QCL - Quality control limit. ND - Not detected at the reporting limit.
 S - Spike recovery outside of advisory limits.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14090061-002
Client Sample ID: TB 4322

Report Date: 09/15/14
Collection Date: 09/03/14 09:30
Date Received: 09/03/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	09/09/14 15:48 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	09/09/14 15:48 / abb
Benzene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Bromoform	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	09/09/14 15:48 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Chloroform	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	09/09/14 15:48 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	09/09/14 15:48 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/09/14 15:48 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	09/09/14 15:48 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
2-Hexanone	ND	ug/L		20		SW8260B	09/09/14 15:48 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	09/09/14 15:48 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	09/09/14 15:48 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	09/09/14 15:48 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Styrene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Toluene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14090061-002
Client Sample ID: TB 4322

Report Date: 09/15/14
Collection Date: 09/03/14 09:30
DateReceived: 09/03/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	09/09/14 15:48 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	09/09/14 15:48 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	09/09/14 15:48 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	09/09/14 15:48 / abb
Surr: 1,2-Dichloroethane-d4	88.0	%REC		70-130		SW8260B	09/09/14 15:48 / abb
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	09/09/14 15:48 / abb
Surr: p-Bromofluorobenzene	130	%REC	S	76-127		SW8260B	09/09/14 15:48 / abb
Surr: Toluene-d8	97.0	%REC		79-122		SW8260B	09/09/14 15:48 / abb

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

S - Spike recovery outside of advisory limits.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 09/15/14

Project: 1273 City of Helena

Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Analytical Run: R100399
Lab ID: 090914_CCV_2	53 Continuing Calibration Verification Standard									09/09/14 07:19
trans-1,4-Dichloro-2-butene		5.80	ug/L	1.0	116	70	130			
Acetone		50.0	ug/L	20	100	70	130			
Acrylonitrile		41.6	ug/L	20	83	70	130			
Benzene		5.28	ug/L	1.0	106	70	130			
Bromochloromethane		4.52	ug/L	1.0	90	70	130			
Bromodichloromethane		5.04	ug/L	1.0	101	70	130			
Bromoform		5.08	ug/L	1.0	102	70	130			
Bromomethane		5.32	ug/L	1.0	106	70	130			
Carbon disulfide		5.04	ug/L	1.0	101	70	130			
Carbon tetrachloride		5.12	ug/L	1.0	102	70	130			
Chlorobenzene		5.40	ug/L	1.0	108	70	130			
Chlorodibromomethane		5.56	ug/L	1.0	111	70	130			
Chloroethane		5.36	ug/L	1.0	107	70	130			
Chloroform		4.88	ug/L	1.0	98	80	120			
Chloromethane		6.04	ug/L	1.0	121	70	130			
1,2-Dibromo-3-chloropropane		3.90	ug/L	1.0	78	70	130			
1,2-Dibromoethane		5.24	ug/L	1.0	105	70	130			
Dibromomethane		5.00	ug/L	1.0	100	70	130			
1,2-Dichlorobenzene		5.00	ug/L	1.0	100	70	130			
1,4-Dichlorobenzene		5.60	ug/L	1.0	112	70	130			
Dichlorodifluoromethane		5.28	ug/L	1.0	106	70	130			
1,1-Dichloroethane		4.92	ug/L	1.0	98	70	130			
1,2-Dichloroethane		4.60	ug/L	1.0	92	70	130			
1,1-Dichloroethene		5.56	ug/L	1.0	111	80	120			
cis-1,2-Dichloroethene		4.96	ug/L	1.0	99	70	130			
trans-1,2-Dichloroethene		5.28	ug/L	1.0	106	70	130			
1,2-Dichloropropane		4.84	ug/L	1.0	97	80	120			
cis-1,3-Dichloropropene		4.88	ug/L	1.0	98	70	130			
trans-1,3-Dichloropropene		4.48	ug/L	1.0	90	70	130			
Ethylbenzene		5.20	ug/L	1.0	104	80	120			
2-Hexanone		46.8	ug/L	20	94	70	130			
Iodomethane		5.04	ug/L	1.0	101	70	130			
Methyl ethyl ketone		43.2	ug/L	20	86	70	130			
Methyl isobutyl ketone		49.2	ug/L	20	98	70	130			
Methylene chloride		4.44	ug/L	1.0	89	70	130			
Styrene		4.92	ug/L	1.0	98	70	130			
1,1,1,2-Tetrachloroethane		4.96	ug/L	1.0	99	70	130			
1,1,2,2-Tetrachloroethane		5.52	ug/L	1.0	110	70	130			
Tetrachloroethene		4.92	ug/L	1.0	98	70	130			
Toluene		4.96	ug/L	1.0	99	80	120			
1,1,1-Trichloroethane		5.24	ug/L	1.0	105	70	130			
1,1,2-Trichloroethane		4.80	ug/L	1.0	96	70	130			
Trichloroethene		5.24	ug/L	1.0	105	70	130			
Trichlorofluoromethane		5.64	ug/L	1.0	113	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 09/15/14
Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Analytical Run: R100399								
Lab ID: 090914_CCV_2	53	Continuing Calibration Verification Standard							09/09/14 07:19	
1,2,3-Trichloropropane		5.48	ug/L	1.0	110	70	130			
Vinyl acetate		4.04	ug/L	1.0	81	70	130			
Vinyl chloride		5.00	ug/L	1.0	100	80	120			
m+p-Xylenes		10.3	ug/L	1.0	103	70	130			
o-Xylene		5.08	ug/L	1.0	102	70	130			
Surr: 1,2-Dichloroethane-d4				1.0	87	69	131			
Surr: Dibromofluoromethane				1.0	104	70	125			
Surr: p-Bromofluorobenzene				1.0	118	76	123			
Surr: Toluene-d8				1.0	103	80	119			
Method: SW8260B		Batch: R100399								
Lab ID: 090914_LCS_3	53	Laboratory Control Sample				Run: 1SATURN_140909A			09/09/14 07:55	
trans-1,4-Dichloro-2-butene		5.48	ug/L	1.0	110	67	132			
Acetone		39.4	ug/L	20	79	55	144			
Acrylonitrile		39.3	ug/L	20	79	63	134			
Benzene		4.76	ug/L	1.0	95	69	129			
Bromochloromethane		3.98	ug/L	1.0	80	72	125			
Bromodichloromethane		4.64	ug/L	1.0	93	71	122			
Bromoform		4.64	ug/L	1.0	93	65	130			
Bromomethane		4.32	ug/L	1.0	86	60	136			
Carbon disulfide		3.60	ug/L	1.0	72	71	135			
Carbon tetrachloride		4.40	ug/L	1.0	88	77	121			
Chlorobenzene		4.48	ug/L	1.0	90	78	120			
Chlorodibromomethane		5.24	ug/L	1.0	105	70	122			
Chloroethane		4.44	ug/L	1.0	89	62	135			
Chloroform		4.24	ug/L	1.0	85	71	121			
Chloromethane		4.80	ug/L	1.0	96	66	139			
1,2-Dibromo-3-chloropropane		4.16	ug/L	1.0	83	59	130			
1,2-Dibromoethane		4.76	ug/L	1.0	95	60	137			
Dibromomethane		4.52	ug/L	1.0	90	69	122			
1,2-Dichlorobenzene		4.44	ug/L	1.0	89	74	122			
1,4-Dichlorobenzene		4.48	ug/L	1.0	90	75	122			
Dichlorodifluoromethane		5.00	ug/L	1.0	100	57	144			
1,1-Dichloroethane		4.04	ug/L	1.0	81	76	125			
1,2-Dichloroethane		4.20	ug/L	1.0	84	69	131			
1,1-Dichloroethene		4.60	ug/L	1.0	92	67	129			
cis-1,2-Dichloroethene		4.48	ug/L	1.0	90	75	122			
trans-1,2-Dichloroethene		4.56	ug/L	1.0	91	75	124			
1,2-Dichloropropane		4.80	ug/L	1.0	96	75	127			
cis-1,3-Dichloropropene		4.52	ug/L	1.0	90	73	124			
trans-1,3-Dichloropropene		4.60	ug/L	1.0	92	72	127			
Ethylbenzene		4.84	ug/L	1.0	97	74	125			
2-Hexanone		41.6	ug/L	20	83	70	128			
Iodomethane		3.26	ug/L	1.0	65	52	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 09/15/14

Project: 1273 City of Helena

Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R100399
Lab ID: 090914_LCS_3	53	Laboratory Control Sample				Run: 1SATURN_140909A				09/09/14 07:55
Methyl ethyl ketone		39.3	ug/L	20	79	56	141			
Methyl isobutyl ketone		42.4	ug/L	20	85	71	121			
Methylene chloride		4.08	ug/L	1.0	82	61	125			
Styrene		4.56	ug/L	1.0	91	75	120			
1,1,1,2-Tetrachloroethane		4.48	ug/L	1.0	90	76	122			
1,1,2,2-Tetrachloroethane		5.12	ug/L	1.0	102	67	124			
Tetrachloroethene		4.72	ug/L	1.0	94	75	126			
Toluene		4.72	ug/L	1.0	94	73	122			
1,1,1-Trichloroethane		4.72	ug/L	1.0	94	76	124			
1,1,2-Trichloroethane		4.12	ug/L	1.0	82	72	125			
Trichloroethene		5.00	ug/L	1.0	100	72	126			
Trichlorofluoromethane		4.84	ug/L	1.0	97	73	131			
1,2,3-Trichloropropane		4.48	ug/L	1.0	90	58	142			
Vinyl acetate		4.36	ug/L	1.0	87	47	154			
Vinyl chloride		5.08	ug/L	1.0	102	69	129			
m+p-Xylenes		9.56	ug/L	1.0	96	72	124			
o-Xylene		4.40	ug/L	1.0	88	74	123			
Surr: 1,2-Dichloroethane-d4				1.0	90	69	131			
Surr: Dibromofluoromethane				1.0	106	70	125			
Surr: p-Bromofluorobenzene				1.0	116	76	123			
Surr: Toluene-d8				1.0	106	80	119			
Lab ID: 090914_MBLK_5	53	Method Blank				Run: 1SATURN_140909A				09/09/14 09:29
trans-1,4-Dichloro-2-butene		ND	ug/L	1.0						
Acetone		ND	ug/L	20						
Acrylonitrile		ND	ug/L	20						
Benzene		ND	ug/L	1.0						
Bromochloromethane		ND	ug/L	1.0						
Bromodichloromethane		ND	ug/L	1.0						
Bromoform		ND	ug/L	1.0						
Bromomethane		ND	ug/L	1.0						
Carbon disulfide		ND	ug/L	1.0						
Carbon tetrachloride		ND	ug/L	1.0						
Chlorobenzene		ND	ug/L	1.0						
Chlorodibromomethane		ND	ug/L	1.0						
Chloroethane		ND	ug/L	1.0						
Chloroform		ND	ug/L	1.0						
Chloromethane		ND	ug/L	1.0						
1,2-Dibromo-3-chloropropane		ND	ug/L	1.0						
1,2-Dibromoethane		ND	ug/L	1.0						
Dibromomethane		ND	ug/L	1.0						
1,2-Dichlorobenzene		ND	ug/L	1.0						
1,4-Dichlorobenzene		ND	ug/L	1.0						
Dichlorodifluoromethane		ND	ug/L	1.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 09/15/14

Project: 1273 City of Helena

Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R100399
Lab ID: 090914_MBLK_5	53	Method Blank		Run: 1SATURN_140909A			09/09/14 09:29			
1,1-Dichloroethane		ND	ug/L	1.0						
1,2-Dichloroethane		ND	ug/L	1.0						
1,1-Dichloroethene		ND	ug/L	1.0						
cis-1,2-Dichloroethene		ND	ug/L	1.0						
trans-1,2-Dichloroethene		ND	ug/L	1.0						
1,2-Dichloropropane		ND	ug/L	1.0						
cis-1,3-Dichloropropene		ND	ug/L	1.0						
trans-1,3-Dichloropropene		ND	ug/L	1.0						
Ethylbenzene		ND	ug/L	1.0						
2-Hexanone		ND	ug/L	20						
Iodomethane		ND	ug/L	1.0						
Methyl ethyl ketone		ND	ug/L	20						
Methyl isobutyl ketone		ND	ug/L	20						
Methylene chloride		ND	ug/L	1.0						
Styrene		ND	ug/L	1.0						
1,1,1,2-Tetrachloroethane		ND	ug/L	1.0						
1,1,2,2-Tetrachloroethane		ND	ug/L	1.0						
Tetrachloroethene		ND	ug/L	1.0						
Toluene		ND	ug/L	1.0						
1,1,1-Trichloroethane		ND	ug/L	1.0						
1,1,2-Trichloroethane		ND	ug/L	1.0						
Trichloroethene		ND	ug/L	1.0						
Trichlorofluoromethane		ND	ug/L	1.0						
1,2,3-Trichloropropane		ND	ug/L	1.0						
Vinyl acetate		ND	ug/L	1.0						
Vinyl chloride		ND	ug/L	1.0						
m+p-Xylenes		ND	ug/L	1.0						
o-Xylene		ND	ug/L	1.0						
Surr: 1,2-Dichloroethane-d4				1.0	82	69	131			
Surr: Dibromofluoromethane				1.0	99	70	125			
Surr: p-Bromofluorobenzene				1.0	124	76	123			S
Surr: Toluene-d8				1.0	101	80	119			
Lab ID: H14080561-016BMS	53	Sample Matrix Spike		Run: 1SATURN_140909A			09/09/14 17:16			
trans-1,4-Dichloro-2-butene		5.76	ug/L	1.0	115	67	132			
Acetone		42.0	ug/L	20	84	55	144			
Acrylonitrile		37.0	ug/L	20	74	63	134			
Benzene		4.64	ug/L	1.0	93	69	129			
Bromochloromethane		4.68	ug/L	1.0	94	72	125			
Bromodichloromethane		6.28	ug/L	1.0	92	71	122			
Bromoform		5.04	ug/L	1.0	101	65	130			
Bromomethane		5.60	ug/L	1.0	112	60	136			
Carbon disulfide		3.79	ug/L	1.0	76	71	135			
Carbon tetrachloride		4.64	ug/L	1.0	93	77	121			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 09/15/14
Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B		Batch: R100399								
Lab ID: H14080561-016BMS	53	Sample Matrix Spike		Run: 1SATURN_140909A				09/09/14 17:16		
Chlorobenzene		4.76	ug/L	1.0	95	78	120			
Chlorodibromomethane		6.12	ug/L	1.0	115	70	122			
Chloroethane		5.12	ug/L	1.0	102	62	135			
Chloroform		7.56	ug/L	1.0	83	71	121			
Chloromethane		6.00	ug/L	1.0	120	66	139			
1,2-Dibromo-3-chloropropane		4.36	ug/L	1.0	87	59	130			
1,2-Dibromoethane		5.08	ug/L	1.0	102	60	137			
Dibromomethane		4.40	ug/L	1.0	88	69	122			
1,2-Dichlorobenzene		4.40	ug/L	1.0	88	74	122			
1,4-Dichlorobenzene		4.76	ug/L	1.0	95	75	122			
Dichlorodifluoromethane		5.80	ug/L	1.0	116	57	144			
1,1-Dichloroethane		4.56	ug/L	1.0	91	76	125			
1,2-Dichloroethane		4.24	ug/L	1.0	85	69	131			
1,1-Dichloroethene		4.96	ug/L	1.0	99	67	129			
cis-1,2-Dichloroethene		4.32	ug/L	1.0	86	75	122			
trans-1,2-Dichloroethene		4.56	ug/L	1.0	91	75	124			
1,2-Dichloropropane		4.64	ug/L	1.0	93	75	127			
cis-1,3-Dichloropropene		4.68	ug/L	1.0	94	73	124			
trans-1,3-Dichloropropene		4.12	ug/L	1.0	82	72	127			
Ethylbenzene		5.00	ug/L	1.0	100	74	125			
2-Hexanone		43.2	ug/L	20	86	70	128			
Iodomethane		3.38	ug/L	1.0	68	52	130			
Methyl ethyl ketone		42.8	ug/L	20	86	56	141			
Methyl isobutyl ketone		44.4	ug/L	20	89	71	121			
Methylene chloride		4.40	ug/L	1.0	88	61	125			
Styrene		4.84	ug/L	1.0	97	75	120			
1,1,1,2-Tetrachloroethane		4.64	ug/L	1.0	93	76	122			
1,1,2,2-Tetrachloroethane		5.36	ug/L	1.0	107	67	124			
Tetrachloroethene		4.72	ug/L	1.0	94	75	126			
Toluene		4.84	ug/L	1.0	97	73	122			
1,1,1-Trichloroethane		4.68	ug/L	1.0	94	76	124			
1,1,2-Trichloroethane		4.32	ug/L	1.0	86	72	125			
Trichloroethene		5.20	ug/L	1.0	104	72	126			
Trichlorofluoromethane		6.04	ug/L	1.0	121	73	131			
1,2,3-Trichloropropane		5.48	ug/L	1.0	110	58	142			
Vinyl acetate		4.88	ug/L	1.0	98	47	154			
Vinyl chloride		5.68	ug/L	1.0	114	69	129			
m+p-Xylenes		10.2	ug/L	1.0	102	72	124			
o-Xylene		4.72	ug/L	1.0	94	74	123			
Surr: 1,2-Dichloroethane-d4				1.0	86	69	131			
Surr: Dibromofluoromethane				1.0	100	70	125			
Surr: p-Bromofluorobenzene				1.0	117	76	123			
Surr: Toluene-d8				1.0	103	80	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 09/15/14
Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R100399
Lab ID: H14080561-016BMSD 53 Sample Matrix Spike Duplicate										Run: 1SATURN_140909A 09/09/14 17:45
trans-1,4-Dichloro-2-butene		5.40	ug/L	1.0	108	67	132	6.5	20	
Acetone		46.8	ug/L	20	94	55	144	11	20	
Acrylonitrile		45.6	ug/L	20	91	63	134	21	20	R
Benzene		4.48	ug/L	1.0	90	69	129	3.5	20	
Bromochloromethane		4.84	ug/L	1.0	97	72	125	3.4	20	
Bromodichloromethane		6.20	ug/L	1.0	90	71	122	1.3	20	
Bromoform		4.96	ug/L	1.0	99	65	130	1.6	20	
Bromomethane		5.20	ug/L	1.0	104	60	136	7.4	20	
Carbon disulfide		3.84	ug/L	1.0	77	71	135	1.3	20	
Carbon tetrachloride		4.56	ug/L	1.0	91	77	121	1.7	20	
Chlorobenzene		4.56	ug/L	1.0	91	78	120	4.3	20	
Chlorodibromomethane		5.72	ug/L	1.0	107	70	122	6.8	20	
Chloroethane		5.08	ug/L	1.0	102	62	135	0.8	20	
Chloroform		7.36	ug/L	1.0	79	71	121	2.7	20	
Chloromethane		6.00	ug/L	1.0	120	66	139	0.0	20	
1,2-Dibromo-3-chloropropane		4.52	ug/L	1.0	90	59	130	3.6	20	
1,2-Dibromoethane		5.00	ug/L	1.0	100	60	137	1.6	20	
Dibromomethane		4.44	ug/L	1.0	89	69	122	0.9	20	
1,2-Dichlorobenzene		4.44	ug/L	1.0	89	74	122	0.9	20	
1,4-Dichlorobenzene		4.80	ug/L	1.0	96	75	122	0.8	20	
Dichlorodifluoromethane		5.48	ug/L	1.0	110	57	144	5.7	20	
1,1-Dichloroethane		4.16	ug/L	1.0	83	76	125	9.2	20	
1,2-Dichloroethane		4.44	ug/L	1.0	89	69	131	4.6	20	
1,1-Dichloroethene		4.68	ug/L	1.0	94	67	129	5.8	20	
cis-1,2-Dichloroethene		4.20	ug/L	1.0	84	75	122	2.8	20	
trans-1,2-Dichloroethene		4.52	ug/L	1.0	90	75	124	0.9	20	
1,2-Dichloropropane		4.64	ug/L	1.0	93	75	127	0.0	20	
cis-1,3-Dichloropropene		4.80	ug/L	1.0	96	73	124	2.5	20	
trans-1,3-Dichloropropene		4.40	ug/L	1.0	88	72	127	6.6	20	
Ethylbenzene		4.68	ug/L	1.0	94	74	125	6.6	20	
2-Hexanone		47.6	ug/L	20	95	70	128	9.7	20	
Iodomethane		3.42	ug/L	1.0	68	52	130	1.3	20	
Methyl ethyl ketone		44.0	ug/L	20	88	56	141	2.8	20	
Methyl isobutyl ketone		52.8	ug/L	20	106	71	121	17	20	
Methylene chloride		4.16	ug/L	1.0	83	61	125	5.6	20	
Styrene		4.32	ug/L	1.0	86	75	120	11	20	
1,1,1,2-Tetrachloroethane		4.60	ug/L	1.0	92	76	122	0.9	20	
1,1,1,2,2-Tetrachloroethane		5.48	ug/L	1.0	110	67	124	2.2	20	
Tetrachloroethene		4.32	ug/L	1.0	86	75	126	8.8	20	
Toluene		4.52	ug/L	1.0	90	73	122	6.8	20	
1,1,1-Trichloroethane		4.68	ug/L	1.0	94	76	124	0.0	20	
1,1,2-Trichloroethane		4.12	ug/L	1.0	82	72	125	4.7	20	
Trichloroethene		4.64	ug/L	1.0	93	72	126	11	20	
Trichlorofluoromethane		5.68	ug/L	1.0	114	73	131	6.1	20	

Qualifiers:

RL - Analyte reporting limit.

R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena

Report Date: 09/15/14
Work Order: H14090061

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B										Batch: R100399
Lab ID: H14080561-016BMSD	53	Sample Matrix Spike Duplicate			Run: 1SATURN_140909A					09/09/14 17:45
1,2,3-Trichloropropane		5.08	ug/L	1.0	102	58	142	7.6	20	
Vinyl acetate		4.96	ug/L	1.0	99	47	154	1.6	20	
Vinyl chloride		5.48	ug/L	1.0	110	69	129	3.6	20	
m+p-Xylenes		9.44	ug/L	1.0	94	72	124	7.7	20	
o-Xylene		4.24	ug/L	1.0	85	74	123	11	20	
Surr: 1,2-Dichloroethane-d4				1.0	94	69	131			
Surr: Dibromofluoromethane				1.0	103	70	125			
Surr: p-Bromofluorobenzene				1.0	121	76	123			
Surr: Toluene-d8				1.0	106	80	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Hydrometrics Inc

H14090061

Login completed by: Tracy L. Lorash

Date Received: 9/3/2014

Reviewed by: BL2000\williams

Received by: tsp

Reviewed Date: 9/15/2014

Carrier Hand Del
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.6°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

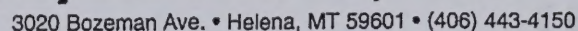
Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None



CHAIN OF CUSTODY RECORD

Signature _____

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

HFORM-1 07/11
TNO 406-443-8550

Split Samples: ☐ Accepted ☐ Declined _____
Signature _____

SITE	SAMPLE #	DATE	TIME	BOTTLES
BILL BOBERTS SANDWICH	CHHL-	9/3/14	09:30	3/WF/HCI/VOL
	1409-			1 TRIP BLANK
	100			

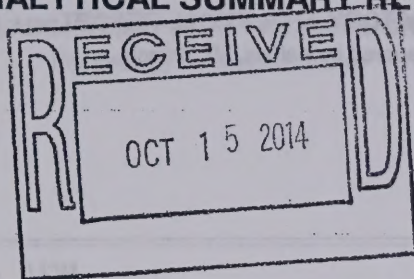
WEATHER: 61°F, P. CLOUDY, WINDY

PERSONNEL: R. WOODS

HL-99-2 HAS LEAK AROUND
PVC JOINT + MOUSE
DROPPINGS AROUND BOTTOM

SITE	TIME	FLOW	TOTALIZER
HL-99-1	08:56	2323.1 12.16	T1: COULD NOT GET DISPLAY T2: TO SWITCH
HL-99-2	09:05	2323.1 19.11	T1: 181137 T2: 178102
HL-99-3	09:12	2323.2 29.44	T1: 184371 T2: 456119

ANALYTICAL SUMMARY REPORT



October 15, 2014

Hydrometrics Inc
3020 Bozeman Ave
Helena, MT 59601

Work Order: H14100039

Project Name: 1273 City of Helena

Energy Laboratories Inc Helena MT received the following 2 samples for Hydrometrics Inc on 10/2/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14100039-001	CHHL-1410-100	10/01/14 11:45	10/02/14	Aqueous	8260-Volatile Organic Comp, 40 CFR Part 258 App I
H14100039-002	TB 4374	10/01/14 11:45	10/02/14	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Project Manager - Helena, MT

Digitally signed by

Wanda Johnson

Date: 2014.10.15 11:17:30 -06:00

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14100039-001
Client Sample ID: CHHL-1410-100

Report Date: 10/15/14
Collection Date: 10/01/14 11:45
Date Received: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 12:55 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 12:55 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	10/10/14 12:55 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 12:55 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 12:55 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 12:55 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 12:55 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 12:55 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 12:55 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 12:55 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 12:55 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb

Report: RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14100039-001
Client Sample ID: CHHL-1410-100

Report Date: 10/15/14
Collection Date: 10/01/14 11:45
Date Received: 10/02/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Vinyl acetate	ND	ug/L		1.0		SW8260B	10/10/14 12:55 / abb
Vinyl chloride	ND	ug/L		0.40		SW8260B	10/10/14 12:55 / abb
m+p-Xylenes	ND	ug/L		1.0		SW8260B	10/10/14 12:55 / abb
o-Xylene	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Xylenes, Total	ND	ug/L		0.50		SW8260B	10/10/14 12:55 / abb
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130		SW8260B	10/10/14 12:55 / abb
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	10/10/14 12:55 / abb
Surr: p-Bromofluorobenzene	117	%REC		76-127		SW8260B	10/10/14 12:55 / abb
Surr: Toluene-d8	89.0	%REC		79-122		SW8260B	10/10/14 12:55 / abb

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Hydrometrics Inc
Project: 1273 City of Helena
Lab ID: H14100039-002
Client Sample ID: TB 4374

Report Date: 10/15/14
Collection Date: 10/01/14 11:45
Date Received: 10/02/14
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Acetone	ND	ug/L		20		SW8260B	10/10/14 12:27 / abb
Acrylonitrile	ND	ug/L		3.0		SW8260B	10/10/14 12:27 / abb
Benzene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Bromochloromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Bromodichloromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Bromoform	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Bromomethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Carbon disulfide	ND	ug/L		1.0		SW8260B	10/10/14 12:27 / abb
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Chlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Chloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Chloroform	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Chloromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,2-Dibromo-3-chloropropane	ND	ug/L		1.0		SW8260B	10/10/14 12:27 / abb
1,2-Dibromoethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Dibromomethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
trans-1,4-Dichloro-2-butene	ND	ug/L		1.0		SW8260B	10/10/14 12:27 / abb
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
cis-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 12:27 / abb
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	10/10/14 12:27 / abb
Ethylbenzene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
2-Hexanone	ND	ug/L		20		SW8260B	10/10/14 12:27 / abb
Iodomethane	ND	ug/L		1.0		SW8260B	10/10/14 12:27 / abb
Methyl ethyl ketone	ND	ug/L		20		SW8260B	10/10/14 12:27 / abb
Methyl isobutyl ketone	ND	ug/L		20		SW8260B	10/10/14 12:27 / abb
Methylene chloride	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Styrene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Tetrachloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Toluene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb
Trichloroethene	ND	ug/L		0.50		SW8260B	10/10/14 12:27 / abb

Report Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Prepared by Helena, MT Branch

Report Date: 10/15/14
Collection Date: 10/01/14 11:45
DateReceived: 10/02/14
Matrix: Trip Blank

Report	RL - Analyte reporting limit.	MCL - Maximum contaminant level.
Definitions:	QCL - Quality control limit.	ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Analytical Run: R101324		
Lab ID: 101014_CCV_3	Continuing Calibration Verification Standard							10/10/14 08:58	
trans-1,4-Dichloro-2-butene	4.68	ug/L	1.0	94	70	130			
Acetone	48.4	ug/L	20	97	70	130			
Benzene	4.56	ug/L	1.0	91	70	130			
Bromochloromethane	4.40	ug/L	1.0	88	70	130			
Bromodichloromethane	4.72	ug/L	1.0	94	70	130			
Bromoform	4.00	ug/L	1.0	80	70	130			
Bromomethane	4.88	ug/L	1.0	98	70	130			
Carbon disulfide	4.56	ug/L	1.0	91	70	130			
Carbon tetrachloride	4.68	ug/L	1.0	94	70	130			
Chlorobenzene	4.96	ug/L	1.0	99	70	130			
Chlorodibromomethane	4.48	ug/L	1.0	90	70	130			
Chloroethane	5.08	ug/L	1.0	102	70	130			
Chloroform	4.60	ug/L	1.0	92	80	120			
Chloromethane	4.36	ug/L	1.0	87	70	130			
1,2-Dibromo-3-chloropropane	4.04	ug/L	1.0	81	70	130			
1,2-Dibromoethane	4.80	ug/L	1.0	96	70	130			
Dibromomethane	4.40	ug/L	1.0	88	70	130			
1,2-Dichlorobenzene	4.48	ug/L	1.0	90	70	130			
1,4-Dichlorobenzene	4.44	ug/L	1.0	89	70	130			
Dichlorodifluoromethane	4.88	ug/L	1.0	98	70	130			
1,1-Dichloroethane	5.28	ug/L	1.0	106	70	130			
1,2-Dichloroethane	4.64	ug/L	1.0	93	70	130			
1,1-Dichloroethene	4.72	ug/L	1.0	94	80	120			
cis-1,2-Dichloroethene	5.04	ug/L	1.0	101	70	130			
trans-1,2-Dichloroethene	4.88	ug/L	1.0	98	70	130			
1,2-Dichloropropane	4.96	ug/L	1.0	99	80	120			
cis-1,3-Dichloropropene	4.76	ug/L	1.0	95	70	130			
trans-1,3-Dichloropropene	4.44	ug/L	1.0	89	70	130			
Ethylbenzene	4.60	ug/L	1.0	92	80	120			
2-Hexanone	47.2	ug/L	20	94	70	130			
Iodomethane	4.80	ug/L	1.0	96	70	130			
Methyl ethyl ketone	46.0	ug/L	20	92	70	130			
Methyl isobutyl ketone	42.8	ug/L	20	86	70	130			
Methylene chloride	3.76	ug/L	1.0	75	70	130			
Styrene	4.72	ug/L	1.0	94	70	130			
1,1,1,2-Tetrachloroethane	4.44	ug/L	1.0	89	70	130			
1,1,2,2-Tetrachloroethane	4.64	ug/L	1.0	93	70	130			
Tetrachloroethene	5.04	ug/L	1.0	101	70	130			
Toluene	4.88	ug/L	1.0	98	80	120			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	70	130			
1,1,2-Trichloroethane	4.48	ug/L	1.0	90	70	130			
Trichloroethene	4.76	ug/L	1.0	95	70	130			
Trichlorofluoromethane	5.12	ug/L	1.0	102	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B					Analytical Run: R101324				
Lab ID: 101014_CCV_3	Continuing Calibration Verification Standard							10/10/14 08:58	
1,2,3-Trichloropropane	4.32	ug/L	1.0	86	70	130			
Vinyl acetate	5.12	ug/L	1.0	102	70	130			
Vinyl chloride	4.96	ug/L	1.0	99	80	120			
m+p-Xylenes	9.32	ug/L	1.0	93	70	130			
o-Xylene	4.80	ug/L	1.0	96	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	104	69	131			
Surr: Dibromofluoromethane			1.0	102	70	125			
Surr: p-Bromofluorobenzene			1.0	104	76	123			
Surr: Toluene-d8			1.0	100	80	119			

Method: SW8260B					Batch: R101324				
Lab ID: 101014_LCS_4	Laboratory Control Sample				Run: 1SATURN_141010A	10/10/14 09:41			
trans-1,4-Dichloro-2-butene	5.36	ug/L	1.0	107	67	132			
Acetone	43.2	ug/L	20	86	55	144			
Benzene	4.56	ug/L	1.0	91	69	129			
Bromochloromethane	4.40	ug/L	1.0	88	72	125			
Bromodichloromethane	4.92	ug/L	1.0	98	71	122			
Bromoform	4.16	ug/L	1.0	83	65	130			
Bromomethane	4.80	ug/L	1.0	96	60	136			
Carbon disulfide	4.56	ug/L	1.0	91	71	135			
Carbon tetrachloride	4.48	ug/L	1.0	90	77	121			
Chlorobenzene	4.68	ug/L	1.0	94	78	120			
Chlorodibromomethane	4.84	ug/L	1.0	97	70	122			
Chloroethane	4.76	ug/L	1.0	95	62	135			
Chloroform	4.56	ug/L	1.0	91	71	121			
Chloromethane	3.86	ug/L	1.0	77	66	139			
1,2-Dibromo-3-chloropropane	5.04	ug/L	1.0	101	59	130			
1,2-Dibromoethane	4.84	ug/L	1.0	97	60	137			
Dibromomethane	4.16	ug/L	1.0	83	69	122			
1,2-Dichlorobenzene	4.36	ug/L	1.0	87	74	122			
1,4-Dichlorobenzene	4.72	ug/L	1.0	94	75	122			
Dichlorodifluoromethane	5.12	ug/L	1.0	102	57	144			
1,1-Dichloroethane	5.08	ug/L	1.0	102	76	125			
1,2-Dichloroethane	4.64	ug/L	1.0	93	69	131			
1,1-Dichloroethene	4.40	ug/L	1.0	88	67	129			
cis-1,2-Dichloroethene	4.88	ug/L	1.0	98	75	122			
trans-1,2-Dichloroethene	4.84	ug/L	1.0	97	75	124			
1,2-Dichloropropane	5.04	ug/L	1.0	101	75	127			
cis-1,3-Dichloropropene	4.92	ug/L	1.0	98	73	124			
trans-1,3-Dichloropropene	4.28	ug/L	1.0	86	72	127			
Ethylbenzene	4.80	ug/L	1.0	96	74	125			
2-Hexanone	48.0	ug/L	20	96	70	128			
Iodomethane	3.99	ug/L	1.0	80	52	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: R101324		
Lab ID: 101014_LCS_4	Laboratory Control Sample				Run: 1SATURN_141010A		10/10/14 09:41		
Methyl ethyl ketone	42.4	ug/L	20	85	56	141			
Methyl isobutyl ketone	45.2	ug/L	20	90	71	121			
Methylene chloride	3.88	ug/L	1.0	78	61	125			
Styrene	5.20	ug/L	1.0	104	75	120			
1,1,1,2-Tetrachloroethane	4.56	ug/L	1.0	91	76	122			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	67	124			
Tetrachloroethene	4.92	ug/L	1.0	98	75	126			
Toluene	4.76	ug/L	1.0	95	73	122			
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	76	124			
1,1,2-Trichloroethane	4.72	ug/L	1.0	94	72	125			
Trichloroethene	4.92	ug/L	1.0	98	72	126			
Trichlorofluoromethane	5.48	ug/L	1.0	110	73	131			
1,2,3-Trichloropropane	4.48	ug/L	1.0	90	58	142			
Vinyl acetate	4.88	ug/L	1.0	98	47	154			
Vinyl chloride	5.92	ug/L	1.0	118	69	129			
m+p-Xylenes	9.08	ug/L	1.0	91	72	124			
o-Xylene	4.36	ug/L	1.0	87	74	123			
Surr: 1,2-Dichloroethane-d4			1.0	100	69	131			
Surr: Dibromofluoromethane			1.0	96	70	125			
Surr: p-Bromofluorobenzene			1.0	103	76	123			
Surr: Toluene-d8			1.0	99	80	119			
Lab ID: 101014_MBLK_6	Method Blank				Run: 1SATURN_141010A		10/10/14 11:02		
trans-1,4-Dichloro-2-butene	ND	ug/L	1.0						
Acetone	ND	ug/L	20						
Benzene	ND	ug/L	1.0						
Bromochloromethane	ND	ug/L	1.0						
Bromodichloromethane	ND	ug/L	1.0						
Bromoform	ND	ug/L	1.0						
Bromomethane	ND	ug/L	1.0						
Carbon disulfide	ND	ug/L	1.0						
Carbon tetrachloride	ND	ug/L	1.0						
Chlorobenzene	ND	ug/L	1.0						
Chlorodibromomethane	ND	ug/L	1.0						
Chloroethane	ND	ug/L	1.0						
Chloroform	ND	ug/L	1.0						
Chloromethane	ND	ug/L	1.0						
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0						
1,2-Dibromoethane	ND	ug/L	1.0						
Dibromomethane	ND	ug/L	1.0						
1,2-Dichlorobenzene	ND	ug/L	1.0						
1,4-Dichlorobenzene	ND	ug/L	1.0						
Dichlorodifluoromethane	ND	ug/L	1.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B			Batch: R101324						
Lab ID: 101014_MBLK_6	Method Blank				Run: 1SATURN_141010A			10/10/14 11:02	
1,1-Dichloroethane	ND	ug/L	1.0						
1,2-Dichloroethane	ND	ug/L	1.0						
1,1-Dichloroethene	ND	ug/L	1.0						
cis-1,2-Dichloroethene	ND	ug/L	1.0						
trans-1,2-Dichloroethene	ND	ug/L	1.0						
1,2-Dichloropropane	ND	ug/L	1.0						
cis-1,3-Dichloropropene	ND	ug/L	1.0						
trans-1,3-Dichloropropene	ND	ug/L	1.0						
Ethylbenzene	ND	ug/L	1.0						
2-Hexanone	ND	ug/L	20						
Iodomethane	ND	ug/L	1.0						
Methyl ethyl ketone	ND	ug/L	20						
Methyl isobutyl ketone	ND	ug/L	20						
Methylene chloride	ND	ug/L	1.0						
Styrene	ND	ug/L	1.0						
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0						
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0						
Tetrachloroethene	ND	ug/L	1.0						
Toluene	ND	ug/L	1.0						
1,1,1-Trichloroethane	ND	ug/L	1.0						
1,1,2-Trichloroethane	ND	ug/L	1.0						
Trichloroethene	ND	ug/L	1.0						
Trichlorofluoromethane	ND	ug/L	1.0						
1,2,3-Trichloropropane	ND	ug/L	1.0						
Vinyl acetate	ND	ug/L	1.0						
Vinyl chloride	ND	ug/L	1.0						
m+p-Xylenes	ND	ug/L	1.0						
o-Xylene	ND	ug/L	1.0						
Surr: 1,2-Dichloroethane-d4			1.0	96	69	131			
Surr: Dibromofluoromethane			1.0	103	70	125			
Surr: p-Bromofluorobenzene			1.0	120	76	123			
Surr: Toluene-d8			1.0	92	80	119			
Lab ID: H14100052-005CMS	Sample Matrix Spike				Run: 1SATURN_141010A			10/10/14 19:08	
trans-1,4-Dichloro-2-butene	10.1	ug/L	1.0	101	67	132			
Acetone	89.6	ug/L	40	90	55	144			
Benzene	9.52	ug/L	1.0	95	69	129			
Bromochloromethane	8.64	ug/L	1.0	86	72	125			
Bromodichloromethane	9.36	ug/L	1.0	94	71	122			
Bromoform	8.48	ug/L	1.0	85	65	130			
Bromomethane	12.2	ug/L	1.0	122	60	136			
Carbon disulfide	21.3	ug/L	1.0	152	71	135			S
Carbon tetrachloride	9.44	ug/L	1.0	94	77	121			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: R101324		
Lab ID: H14100052-005CMS	Sample Matrix Spike		Run: 1SATURN_141010A				10/10/14 19:08		
Chlorobenzene	8.80	ug/L	1.0	88	78	120			
Chlorodibromomethane	8.96	ug/L	1.0	90	70	122			
Chloroethane	0.800	ug/L	1.0	8	62	135			S
Chloroform	9.20	ug/L	1.0	92	71	121			
Chloromethane	7.50	ug/L	1.0	75	66	139			
1,2-Dibromo-3-chloropropane	7.98	ug/L	1.0	80	59	130			
1,2-Dibromoethane	9.28	ug/L	1.0	93	60	137			
Dibromomethane	8.24	ug/L	1.0	82	69	122			
1,2-Dichlorobenzene	8.48	ug/L	1.0	85	74	122			
1,4-Dichlorobenzene	8.48	ug/L	1.0	85	75	122			
Dichlorodifluoromethane	9.60	ug/L	1.0	96	57	144			
1,1-Dichloroethane	9.92	ug/L	1.0	99	76	125			
1,2-Dichloroethane	8.80	ug/L	1.0	88	69	131			
1,1-Dichloroethene	8.88	ug/L	1.0	89	67	129			
cis-1,2-Dichloroethene	10.2	ug/L	1.0	102	75	122			
trans-1,2-Dichloroethene	9.76	ug/L	1.0	98	75	124			
1,2-Dichloropropane	9.84	ug/L	1.0	98	75	127			
cis-1,3-Dichloropropene	9.76	ug/L	1.0	98	73	124			
trans-1,3-Dichloropropene	9.36	ug/L	1.0	94	72	127			
Ethylbenzene	9.44	ug/L	1.0	94	74	125			
2-Hexanone	104	ug/L	40	104	70	128			
Iodomethane	7.99	ug/L	1.0	80	52	130			
Methyl ethyl ketone	94.4	ug/L	40	94	56	141			
Methyl isobutyl ketone	102	ug/L	40	102	71	121			
Methylene chloride	7.49	ug/L	1.0	75	61	125			
Styrene	9.84	ug/L	1.0	98	75	120			
1,1,1,2-Tetrachloroethane	9.04	ug/L	1.0	90	76	122			
1,1,2,2-Tetrachloroethane	10.2	ug/L	1.0	102	67	124			
Tetrachloroethene	9.68	ug/L	1.0	97	75	126			
Toluene	9.76	ug/L	1.0	98	73	122			
1,1,1-Trichloroethane	9.60	ug/L	1.0	96	76	124			
1,1,2-Trichloroethane	9.92	ug/L	1.0	99	72	125			
Trichloroethene	9.44	ug/L	1.0	94	72	126			
Trichlorofluoromethane	9.84	ug/L	1.0	98	73	131			
1,2,3-Trichloropropane	11.0	ug/L	1.0	110	58	142			
Vinyl acetate	11.0	ug/L	1.0	110	47	154			
Vinyl chloride	10.9	ug/L	1.0	109	69	129			
m+p-Xylenes	17.3	ug/L	1.0	86	72	124			
o-Xylene	9.44	ug/L	1.0	94	74	123			
Surr: 1,2-Dichloroethane-d4			2.0	98	69	131			
Surr: Dibromofluoromethane			2.0	99	70	125			
Surr: p-Bromofluorobenzene			2.0	103	76	123			
Surr: Toluene-d8			2.0	92	80	119			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B							Batch: R101324		
Lab ID: H14100052-005CMS	Sample Matrix Spike		Run: 1SATURN_141010A				10/10/14 19:08		
- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.									
Lab ID: H14100052-005CMSD	Sample Matrix Spike Duplicate		Run: 1SATURN_141010A				10/10/14 19:36		
trans-1,4-Dichloro-2-butene	9.92	ug/L	1.0	99	67	132	1.6	20	
Acetone	93.6	ug/L	40	94	55	144	4.4	20	
Benzene	9.44	ug/L	1.0	94	69	129	0.8	20	
Bromochloromethane	8.88	ug/L	1.0	89	72	125	2.7	20	
Bromodichloromethane	10.1	ug/L	1.0	101	71	122	7.4	20	
Bromoform	8.96	ug/L	1.0	90	65	130	5.5	20	
Bromomethane	12.2	ug/L	1.0	122	60	136	0.7	20	
Carbon disulfide	18.7	ug/L	1.0	126	71	135	13	20	
Carbon tetrachloride	9.44	ug/L	1.0	94	77	121	0.0	20	
Chlorobenzene	9.20	ug/L	1.0	92	78	120	4.4	20	
Chlorodibromomethane	9.60	ug/L	1.0	96	70	122	6.9	20	
Chloroethane	0.680	ug/L	1.0	7	62	135		20	S
Chloroform	8.96	ug/L	1.0	90	71	121	2.6	20	
Chloromethane	7.82	ug/L	1.0	78	66	139	4.2	20	
1,2-Dibromo-3-chloropropane	10.1	ug/L	1.0	101	59	130	23	20	R
1,2-Dibromoethane	8.88	ug/L	1.0	89	60	137	4.4	20	
Dibromomethane	8.72	ug/L	1.0	87	69	122	5.7	20	
1,2-Dichlorobenzene	8.88	ug/L	1.0	89	74	122	4.6	20	
1,4-Dichlorobenzene	9.28	ug/L	1.0	93	75	122	9.0	20	
Dichlorodifluoromethane	10.1	ug/L	1.0	101	57	144	4.9	20	
1,1-Dichloroethane	10.1	ug/L	1.0	101	76	125	1.6	20	
1,2-Dichloroethane	7.96	ug/L	1.0	80	69	131	10	20	
1,1-Dichloroethene	8.80	ug/L	1.0	88	67	129	0.9	20	
cis-1,2-Dichloroethene	10.2	ug/L	1.0	102	75	122	0.8	20	
trans-1,2-Dichloroethene	9.44	ug/L	1.0	94	75	124	3.3	20	
1,2-Dichloropropane	10.4	ug/L	1.0	104	75	127	5.5	20	
cis-1,3-Dichloropropene	10.1	ug/L	1.0	101	73	124	3.2	20	
trans-1,3-Dichloropropene	8.88	ug/L	1.0	89	72	127	5.3	20	
Ethylbenzene	9.44	ug/L	1.0	94	74	125	0.0	20	
2-Hexanone	108	ug/L	40	108	70	128	3.8	20	
Iodomethane	8.00	ug/L	1.0	80	52	130	0.1	20	
Methyl ethyl ketone	94.4	ug/L	40	94	56	141	0.0	20	
Methyl isobutyl ketone	98.4	ug/L	40	98	71	121	3.2	20	
Methylene chloride	7.30	ug/L	1.0	73	61	125	2.5	20	
Styrene	10.4	ug/L	1.0	104	75	120	5.5	20	
1,1,1,2-Tetrachloroethane	9.12	ug/L	1.0	91	76	122	0.9	20	
1,1,2,2-Tetrachloroethane	10.1	ug/L	1.0	101	67	124	0.8	20	
Tetrachloroethene	9.60	ug/L	1.0	96	75	126	0.8	20	
Toluene	9.84	ug/L	1.0	98	73	122	0.8	20	
1,1,1-Trichloroethane	9.36	ug/L	1.0	94	76	124	2.5	20	
1,1,2-Trichloroethane	9.60	ug/L	1.0	96	72	125	3.3	20	

Qualifiers:

RL - Analyte reporting limit.

R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Hydrometrics Inc

Report Date: 10/15/14

Project: 1273 City of Helena

Work Order: H14100039

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R101324
Lab ID: H14100052-005CMSD	Sample Matrix Spike Duplicate			Run: 1SATURN_141010A			10/10/14 19:36		
Trichloroethene	9.84	ug/L	1.0	98	72	126	4.1	20	
Trichlorofluoromethane	9.28	ug/L	1.0	93	73	131	5.9	20	
1,2,3-Trichloropropane	9.44	ug/L	1.0	94	58	142	15	20	
Vinyl acetate	11.0	ug/L	1.0	110	47	154	0.7	20	
Vinyl chloride	11.1	ug/L	1.0	111	69	129	2.2	20	
m+p-Xylenes	18.2	ug/L	1.0	91	72	124	5.4	20	
o-Xylene	9.04	ug/L	1.0	90	74	123	4.3	20	
Surr: 1,2-Dichloroethane-d4			2.0	97	69	131			
Surr: Dibromofluoromethane			2.0	98	70	125			
Surr: p-Bromofluorobenzene			2.0	102	76	123			
Surr: Toluene-d8			2.0	95	80	119			
- 2-Chloroethyl vinyl ether will degrade in acid-preserved samples.									

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Hydrometrics Inc

H14100039

Login completed by: Tracy L. Lorash

Date Received: 10/2/2014

Reviewed by: BL2000\williams

Received by: AHN

Reviewed Date: 10/6/2014

Carrier Hand Del
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.0°C On Ice		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as -dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

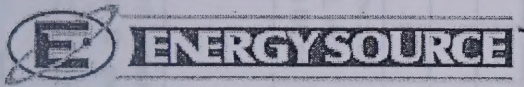
3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

4150

PH	OF / HNO ₃	
X	8260 LONG LIST = VOCs	0.001 mg/L DET. LIMIT

Ericka Vallance

From: EnergySource@energylab.com
Sent: Wednesday, October 15, 2014 1:22 PM
To: Ericka Vallance
Subject: Samples Received at Energy Laboratories



A CLIENT RESOURCE OF ENERGY LABORATORIES

ANNOUNCEMENT

This email is to inform you that Energy Laboratories, Inc. - Billings has received your samples. A summary of the Work Order is shown below.

Client: Stillwater Mining Co Nye
Project: Benbow Monthly 12047.00
Assigned Work Order No: B14101181
Date Received: 10/15/2014 6:00:00 AM

Please log in to EnergySource for more detailed information about your samples and look for the results to be posted as soon as the analyses are completed.
<http://energysource.energylab.com>

You are receiving this email because you have signed up for this notification on EnergySource. If you would like to change your notification settings, log in to EnergySource and make changes in the "My Account" area.

Thank you.

www.energylab.com

Helena, MT	Billings, MT	Casper, WY	Gillette, WY	Rapid City, SD	Collage Station, TX
877-472-0711	800-735-4489	888-235-0515	866-686-7175	888-672-1225	888-690-2218

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

HFORM-1 07/11
406-4

Split Samples:
☐ Accepted ☐ Declined

Signature _____

SITE	SAMPLE #	DATE	TIME	BOTTLES
BILL	CHHL-	10/1/14	11:45	3/UF/RAW/VOC
ROBERTS	1410-			1 TRIP BLANK
SPRINKLER	100			

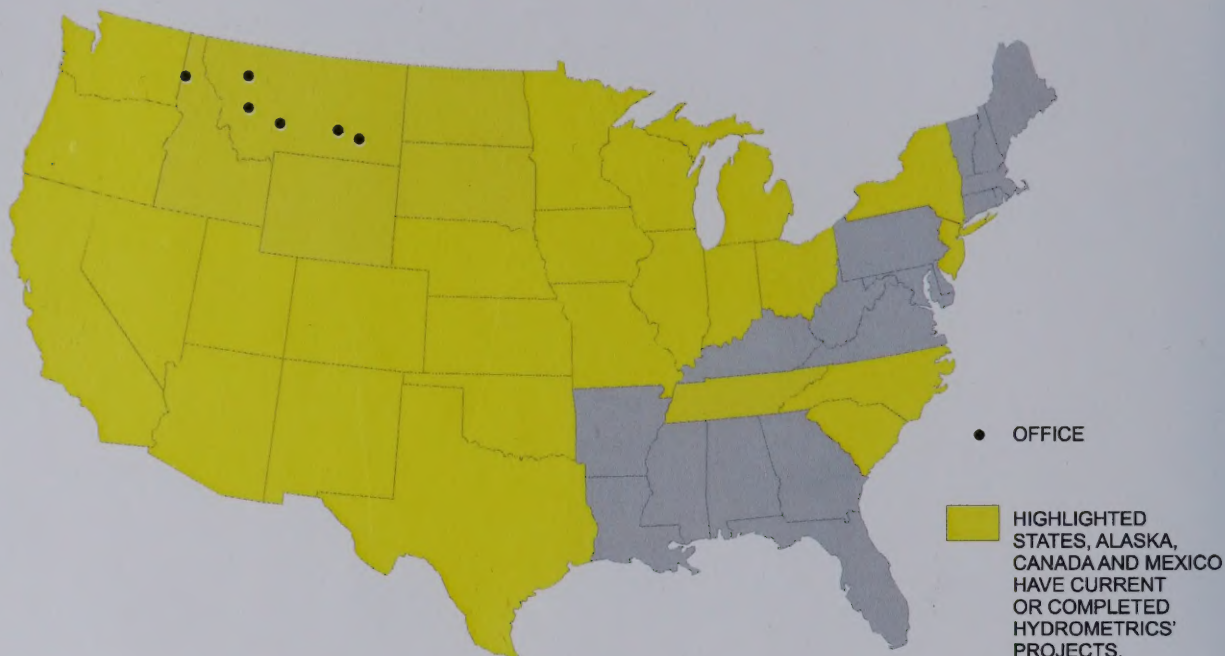
WEATHER: 55° P. CLOUDY, WINDY

PERSONNEL: E. WOODS

SITE	TIME	FLOW	TOTAL ZK
HL-99-1	11:15	2953.1	11.78
			T ₁ = COULD NOT
			T ₂ = GET DISPLAY SWITCH
HL-99-2	11:23	2997.3	19.78
			T ₁ = 256 206
			T ₂ = 253 17.1
HL-99-3	11:27	2953.1	29.11
			T ₁ = 195 35 2
			T ₂ = 565 778

HL-99-2 HAS LEAK AROUND

PVC JOINT + MOUSE DROPPINGS.



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IDAHO

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